Carving interactions

Rock art in the nomadic landscape of the Black Desert, north-eastern Jordan

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For Grethe and Niels Østerled Nielsen

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Chapter 1

Introduction

Rock art both intrigues and confuses us; on the one hand, it provides a seemingly direct insight into ancient lives, but on the other, its meaning often remains elusive. Both factors have contributed to the long-time fascination among scholars and the public alike for the ancient images that can be found across the globe. Over the past decades, rock art research has developed into a professional sub-discipline of archaeology, in which substantial advancements having been made methodologically and theoretically (Conkey 2012; McDonald and Veth 2012; Whitley 2001). We are therefore continuously gaining new insights into the various ways that rock art was significant in past societies. As a result, rock art is increasingly being utilised as a source of information for a wide range of archaeological questions. It is a unique material due to it being, literally, carved in stone, revealing insights into societies and their cosmology that other, movable and more perishable materials cannot. Furthermore, due to its medium and permanence, rock art has a singular relationship with the landscape that can provide a different perspective on how past societies interacted with their environment – and with each other.

This potential has been demonstrated by a wide range of seminal works on the role of rock art and its role in the landscape in, especially, nomadic hunter-gatherer societies (e.g. Bradley 1997; Chippindale and Nash 2004a; Nash 2002). However, the rock art of nomadic (semi-)herding societies has been researched to a far lesser extent. Studies that have investigated rock art and its role in herding societies have often explained it in terms of the communication of territorial claims or mediation amidst territorial tension (Brandt and Carder 1987; Frachetti 2008a; Holl 2004). These models cite territoriality as a feature typical of herding societies, but this generalist interpretation does not elucidate the many aspects of what can be expressed in and through rock art. Nor does it take into account the complexity of - and variety in - the relationships between herding societies, the landscape, and the practice of making rock art. Few studies on herding societies have addressed rock art as a cultural practice that is interwoven with the specific facets of their culture, landscape, and time, and that must therefore be studied from the material bottom-up. Consequently, rock art remains under-utilised as a source of information about these types of societies and their very particular interaction with the domestic and wild landscape.

This book endeavours to shed light on these issues through an investigation into a rich dataset of petroglyphs from the so-called Black Desert of northern Arabia. In this basalt desert, tens of thousands of pictorial and textual engravings can be found, carved by nomadic societies inhabiting the region in the late 1st millennium BC and early 1st millennium AD. The texts are written in Safaitic, a pre-Islamic script local to the Black Desert, which stretches from southern Syria through north-eastern Jordan to northern Saudi Arabia. They include names, narratives, and 'signatures' of the rock art (Figure 1.1). Studies of the textual engravings have provided a wealth of information on the peoples that made these carvings, revealing that they were nomads inhabiting the basalt desert in the Late Hellenistic and Roman periods, subsisting, at least in part, on owning dromedary camels, horses, and ovicaprids (e.g. Al-Jallad 2015; Macdonald 1992b, 1993). However, many

Figure 1.1. A large Safaitic engraving in the Jebel Qurma region. The carving depicts a dromedary camel with an associated inscripition in which the producer states his name and says 'the camel is by him' (QUR-683.35).

questions about these societies remain, in particular how they operated in and interacted with their desert landscape, what the nature of their cosmology was, and why they carved texts and depictions into the basalt rocks of the desert. Studying the rock art as a form of cultural practice opens up unique opportunities to address these questions. Furthermore, the Safaitic rock art is an exceptional dataset for furthering our understanding of the rock art of herding societies in general and their interactions with the landscape. The rich quantity of petroglyphs, the geographically distinct region, the relatively closed timespan, and the insights from the associated inscriptions all contribute to this rock art's great potential for providing a better understanding of broader questions on nomadic societies, their worldview, and their relationship with their environment.

This study therefore aims to develop a new understanding of the pictorial carvings and the people who carved them through the first-ever in-depth, systematic investigation of Safaitic rock art from the Black Desert, based on a dataset of over 4500 petroglyphs from the Jebel Qurma region in north-eastern Jordan. In this book, I discuss the content of the rock art, how it was produced and consumed by its makers and audience, and its relationship with the landscape. Through this bottom-up, material approach, I explore the cultural practice of making rock art in the desert societies and what it tells us about these societies' way of life. Through the rock art I explore their interactions with the landscape they inhabited, which I regard to include its natural and anthropogenic features, the wild and domestic fauna, and the people themselves. Subsequently, I re-examine our understanding of rock art in herding and nomadic societies and the insights it provides into how these societies perceived and related to their landscape.

1.1. Desert peoples and desert carvings

1.1.1. The Black Desert

The Black Desert is a rocky desert that is aptly named after the dark basalt rocks that cover large parts of its surface. This basalt expanse, known in Arabic as the *Harrat al-Sham*, stretches from southern Syria across north-eastern Jordan into northern Saudi Arabia (Figure 1.2). The Black Desert in Jordan comprises the basalt-covered uplands, known locally as the *harra*, which are rough and difficult to traverse, and the surrounding, more easily accessible, gravel-covered plains, the *hamad* (Figure 1.3). Both types of terrain are found in the research area of this study, the Jebel Qurma region. This region is situated in the northeast of Jordan, on the western edge of the Black Desert. It lies approximately 30 km east of the modern town and (former) oasis of Azraq.

Today the Black Desert receives on average less than 200 mm of rain annually in the north and less than 50 mm in the Jebel Qurma region and northern Saudi Arabia. There are only a few permanent water sources, such as Azraq, Nemara, and Burqu'. Wadis crisscross the desert but may remain dry for most or all of the year, depending on the rainfall. Numerous mudflats can also hold temporary or seasonal water. Temperatures can be extreme, with summer maxima reaching 46 ºC and average winter minima reaching 10 ºC (Al-Homoud *et al.* 1995). Despite the seemingly inhospitable environment, however, a wealth of above-ground archaeological and epigraphic remains attests to a long, yet punctuated inhabitation of the area (Akkermans *et al.* 2014; Akkermans and Brüning 2017; Huigens 2018). The rich quantity of stone-built structures, such as enclosures, cairns, and campsites, reveals long-term investments into the landscape by various societies through time (Huigens 2018; Huigens forthcoming) (Figure 1.4). Equally, the tens of thousands of pictorial and textual carvings that can found be across the Black Desert are evidence of a rich material culture from a relatively short timespan.

1.1.2. Safaitic carvings and their makers

The Safaitic carvings are one type of several pre-Islamic 'Ancient North Arabian' scripts and associated rock art that existed in the late 1st millennium BC and early 1st millennium AD in Northern Arabia. The Safaitic texts and rock art are local to and concentrated in the *harra* desert. Sporadic Safaitic texts have been found in other areas of the Near East, such as Palmyra, and a few were even discovered in Pompeii (Macdonald 1993), but this script and form of rock art are intrinsically connected to the basalt desert. Other types of Ancient North Arabian scripts and rock art include Hismaic, which is localised in the Hisma desert in southern Jordan (Corbett 2010; G.M.H. King 1990) and Thamudic, which is concentrated in northern Saudi Arabia (Guagnin *et al.* 2016; Jennings *et al.* 2013). Like the rock art associated with the Safaitic inscriptions, the Hismaic and Thamudic pictorial engravings have been studied insufficiently. However, based on the known datasets, it is evident that there are similarities between the various forms of Ancient North Arabian rock art but there are also clear differences. For this reason, it is possible to study the rock art from the *harra* as a distinct cultural practice, as a *Safaitic rock art* tradition.

The Safaitic carvings are engraved into the basalt rocks of the *harra* and can be found on rocky outcrops, on and around architectural structures, and in isolated clusters (Figure 1.5). Over 40,000 inscriptions have been recorded throughout the basalt desert since their discovery in 1858 (Al-Manaser and Macdonald 2017). It is likely that almost as many rock art depictions exist, but until now the rock art was not always recorded in

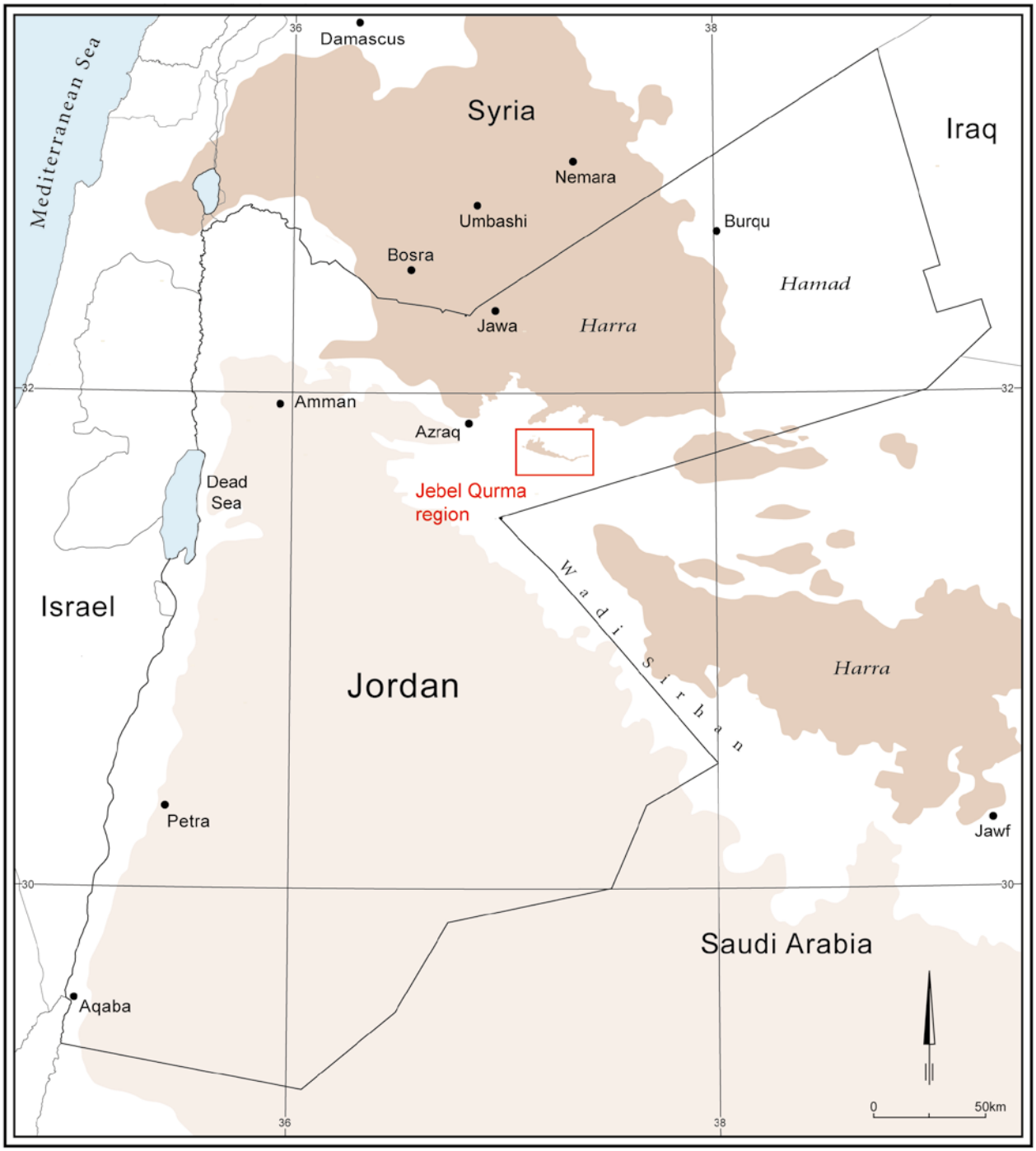


Figure 1.2. Map of Jordan showing the Black Desert, consisting of the basalt-covered uplands, the *harra*, and the low-lying plains, the *hamad*. The research area Jebel Qurma is indicated. Illustration by Mikko Kriek 2015.

the field so the exact number is unknown. The Safaitic rock art is figurative in nature, depicting domestic and wild animals, anthropomorphic figures, abstract motifs, and scenes of hunting and fighting (Figure 1.6). They are intrinsically linked to the textual engravings; a common composition is a rock art figure or scene associated with an inscription in which the author states his name and genealogy and 'signs' the image (Figure 1.7) (see Chapter 3). Some inscriptions refer to historical events, dates, or names, which have made it possible to situate the Safaitic carvings approximately in the period between the 1st century BC to the 4th century AD (Al-Jallad 2015: 17). This places the production of the carvings in the Late Hellenistic and Roman period. The production of Safaitic carvings may have started earlier and ended later than what can be traced from dated inscriptions (Al-Jallad 2015: 18), but this chronology provides at least a minimum range for the period of production.

Engravings from other periods have been found in the Jebel Qurma region as well, including medieval and

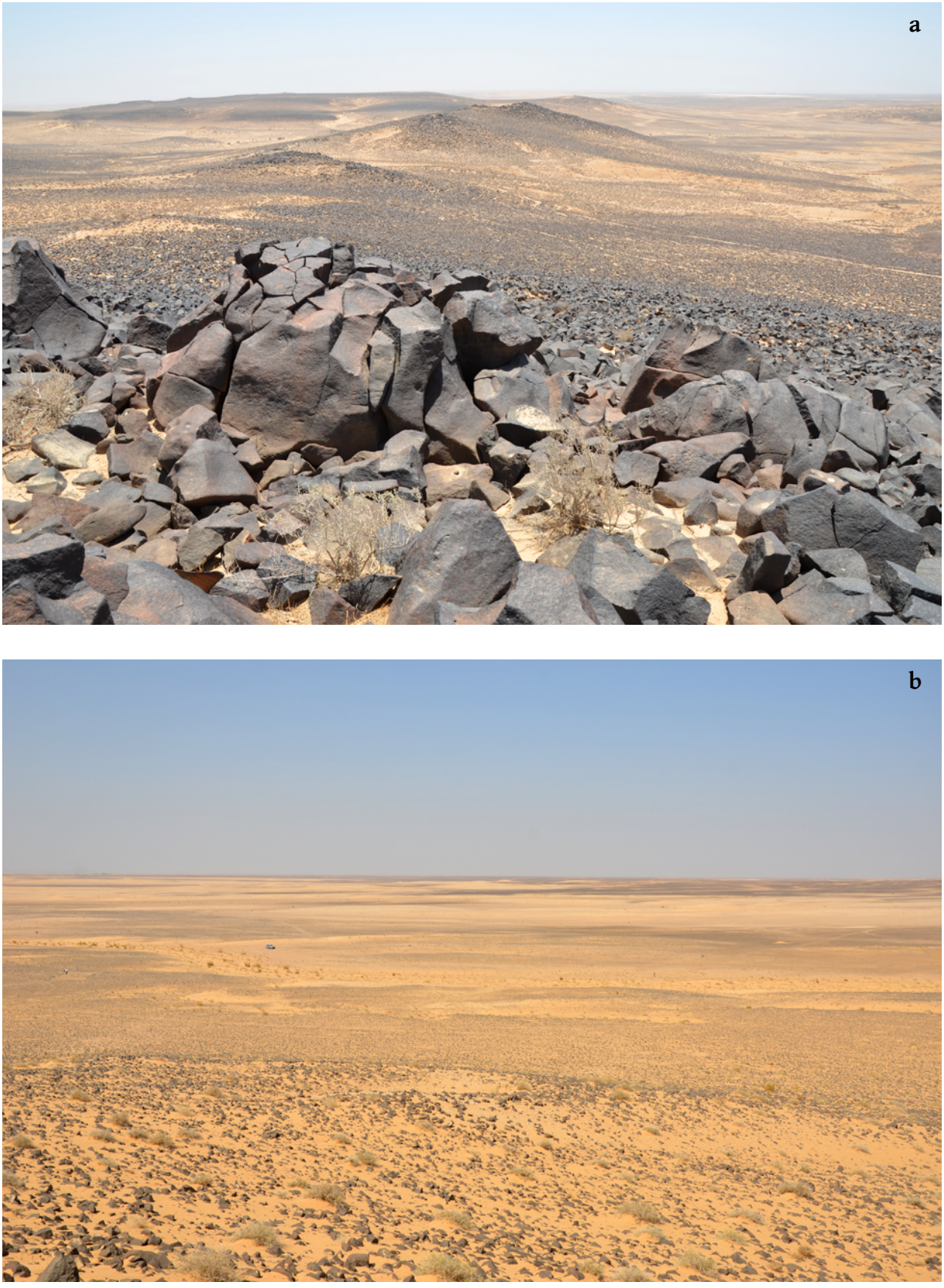


Figure 1.3. a) The rolling basalt-covered uplands of the harra. b) The low-lying plains of the *hamad*.

Figure 1.4. A burial cairn at the site QUR-956. In the distance several stone enclosures are visible on the leftside slope of the next hill.

modern Arabic engravings and so-called tribal marks, *wusūm*, which likely date to the 19th and 20th centuries (Berghuijs 2017). Northeast of the Jebel Qurma research area, prehistoric rock art dating to circa the 7th millennium BC has been found in the *harra* (Betts 1987), but no clear prehistoric rock art has been found in the Jebel Qurma region so far. This study focuses on the Safaitic rock art of the late 1st millennium BC to early 1st millennium AD.

Until very recently, what we know about the societies that made these carvings in the desert has been based almost entirely on evidence from the inscriptions. Some of the texts contain a so-called narrative component, in which, for example, the author states that he pastured his camels, migrated to another area, spent the winter in a particular place, or mourned the loss of a loved one (Al-Jallad 2015; Macdonald 1993). Based on these unique insights into the authors' lives, the image emerges that these peoples were nomads who moved through the desert, camping in different areas according to the seasons, and owned dromedary camels, horses and mules, and ovicaprids (Macdonald 1992b, 1993, forthcoming). They built cairns for their dead, worshipped a range of deities, and followed a zodiac calendar (Al-Jallad 2014; Macdonald 2006, 2012, 2016). There is evidence for contact between these desert peoples and the nearby Nabataean and Roman empires (Al-Jallad 2015; Macdonald 1993, 2014). However, it is unclear whether they had any contact with or relation to the large-scale camel-based trade routes that were well-established in this period and probably passed nearby the *harra* desert (cf. Hesse 2016; Magee 2014; Seland 2015; Rosen 2008).

Almost all of the known Safaitic inscriptions were carved by men. The conventional formula of the texts is for the author to state his name and genealogy, in which the vast majority say 'By [name] *son of* [name]'. In the known Safaitic corpora and in other Ancient North Arabian corpora of inscriptions, there are only a few rare examples of texts signed by women (Norris 2017). Other than specific genealogies and tribes, it is unclear how the peoples who used the Safaitic script and carved the associated rock art were related to one another; there are no indications that the nomads of the *harra* were necessarily one cultural or ethnic community (Al-Jallad 2015; Macdonald 1993). The content of the inscriptions indicate that there were different tribal affiliations and that there was conflict and raiding among different social groups (Al-Jallad 2015; Della Puppa forthcoming; Macdonald 1990; Norris and Al-Manaser 2018). However, the shared use of the Safaitic script and the associated rock art, situated very locally in the Black Desert region, testifies to a distinct cultural tradition among the nomads.

The inscriptions provide a rare perspective on the lives of these desert peoples and the scholarly work on them continues to reveal new insights. However, many issues are still unresolved, including how these peoples operated in the desert landscape. The inscriptions suggest that they had dromedary camels, ovicaprids, and domestic equids. But were they nomadic pastoralists, i.e. did they have 'a way of life based predominantly in the social and economic strategies associated with a routine migratory management of domesticated herd animals' (Frachetti 2008b: 368)? Or should we perhaps consider them in terms of 'herder-gatherers', a term coined by Rosen (2002) to denote the Neolithic Near Eastern societies that adopted herding as a subsistence strategy but still practised hunting. There is increasing evidence that, since its advent, pastoralism in the Near East was not a production system that replaced hunting and gathering, but rather that herding became part of a broader subsistence strategy (Betts 2008; Makarewicz 2013, Magee 2014; Rosen 2002). Additionally, it is also important to consider that there may have been differences in production systems within the groups that used the Safaitic script (Macdonald 1993: 319). Research on the inscriptions has helped to reconstruct how the nomads migrated through the desert according to the seasons (Macdonald 1992b). However, little is known about how the nomads interacted with their landscape.

Archaeological research on the makers of the Safaitic carvings has been scarce, with the few survey and excavation projects in the Black Desert generally targeting the prehistoric societies of this region (Huigens 2018: 4). The epigraphic evidence reveals that the people carving the Safaitic rock art and texts were nomads (Huigens 2018; Macdonald 1992b, 1993) and new archaeological research in the Jebel Qurma region supports this (Huigens 2018; Huigens forthcoming). However, reconstructing their subsistence strategies and ways of life is limited by the arid conditions of the desert. Although above-ground structures are well-attested, few finds survive and organic remains are often poorly preserved (Akkermans and Brüning 2017; Huigens 2018). Recent archaeological research in the Jebel Qurma region revealed hardly any faunal remains and limited ceramic remains from the Hellenistic and Roman periods (Huigens 2018: 206). A large number of stone structures, including numerous cairns, could be dated as broadly contemporary with the Safaitic carvings (Huigens 2018: 217). It remains difficult to link any structures or burials directly to the people who made the carvings though (Huigens 2018: 209), as will be discussed in this study. However, this research has demonstrated that there have been various phases of nomadic activity in the desert since at least the Early Neolithic, whereby peoples invested long-term in their landscape through the construction of, often monumental, structures, such

Figure 1.5. An engraved panel overlooks the Wadi Rajil and its valley. The large boulder shows, among others, equids, camels, an ostrich, a carnivore, and Safaitic inscriptions. A few metres away another camel motif can be seen (QUR-683.37).

as cairns (Akkermans *et al.* 2014; Huigens 2018). Whether these were the same nomads who made the carvings remains to be shown, but it is clear that the Safaitic authors were not operating in an empty landscape.

1.1.3. Research on Safaitic rock art

The inscriptions and rock art thus remain to a very large extent the most direct, clear insight into these peoples. However, surprisingly, the rock art has been used only sparingly to supplement the information gleaned from the inscriptions. In general, it has been neglected by epigraphists and archaeologists alike. Most studies of the inscriptions include mention of the Safaitic imagery, but are limited to listing types of motifs and publishing a few tracings of figures (Figure 1.8) (e.g. Ababneh 2005; Al-Manaser 2008; Clark 1980; Oxtoby 1968). Few analytical attempts have been made at understanding the desert depictions and interpretations of their meaning have remained superficial. For example, the depiction of domestic animals, such as dromedary camels and horses, has often been interpreted as representing a claim of ownership of these animals (Clark 1980; Winnett and Harding 1978). An exception is the work of Michael Macdonald, who has endeavoured to provide frameworks for understanding and identifying some of the motifs, such as the women figures (Macdonald 2006), raiding scenes (Macdonald 1990, 2012), and the equid motifs (Macdonald forthcoming).

However, an in-depth study of all of the motifs and scenes portrayed in the rock art has not yet been carried out. Interpretations proposed so far have also been limited by the lack of complete rock art datasets; the majority of surveys carried out in the basalt desert only documented rock art if it was associated with an inscription. For this reason, in contrast to the texts, little is known about the full content of the pictorial engravings. Other questions remain about both types of carvings. Few studies have investigated the production process behind them; how were they made, using which techniques, and following which steps? And *where* were they produced? Contextual studies of the Safaitic engravings have been few so far and contextual information has rarely been recorded in past surveys. One idea about the landscape setting of the inscriptions has persisted. This is that they can mainly be found at and on cairns, a claim first made by Oxtoby (1968). However, as Macdonald (1992a: 303) has pointed out, the survey from which Oxtoby's dataset originated, *Fifty Safaitic Cairns* (also published in Winnett and Harding 1978), collected inscriptions only from cairns. This is therefore a classic case of circular reasoning. Macdonald (1992a: 305) subsequently argued, based on data from the Jawa area (see Figure 1.2), that the carvings are scattered across the region and that 'they occur, in greater or lesser numbers, almost anywhere that the rock is suitable for inscribing'. However, no description of how the carvings in the Jawa area were recorded or distribution maps of their locations are included so it is not possible to evaluate this claim. Overall, therefore, research on the spatial distribution of the Safaitic carvings is lacking. Consequently, little is known about the relationship between the engravings and the landscape.

Many facets of these carvings thus remain to be explored. At the heart of these issues is the question of how we are to understand the cultural practice of making and engaging with these carvings in the desert societies. Through exploring what is depicted, how the rock art was made and engaged with, and where in the landscape it is situated, it is possible to elucidate this cultural practice. Here it must be noted that the texts and the images may not have had the same purpose. Although they are fundamentally linked to one another, what was expressed through imagery, and why, may not have been the same as what was expressed through text. It is not the aim of this study to address this question, for which an in-depth comparative study of both types of engravings is necessary. Instead, this study endeavours to investigate the *lacunae* in our knowledge of the rock art and, consequently, provide new perspectives on the

Figure 1.6. A scene showing an archer hunting or perhaps defending himself from two carnivores, presumably lions. The Safaitic inscription states "By Rāgel son of Zamhar son of 'Aus are the animals". Scale bar = 20 cm. (QUR-529.23).

ancient desert nomads. It is to be hoped that this will provide a framework for future research to compare and contrast the roles and interpretations of the two types of engravings.

1.2. Herders, hunters, and the practice of rock art

1.2.1. Introduction

In comparison to other archaeological materials, rock art is 'a more immediate record, both easier to see and harder to make sense of' (Taçon and Chippindale 1998: 2). However, the endeavour to understand it can reveal unique insights into the people who made it that other archaeological materials cannot. In the following section, I focus on a number of key theories on the role of rock art in nomadic hunting and herding societies. In particular, I discuss those which consider the implications for our understanding on how these societies interacted with their landscape and, vice versa, the implications of their mode of operation in the landscape on the role of their rock art.

1.2.2. Understanding the Safaitic carvings

The role of the different types of Arabian rock art in the ancient nomadic societies, and especially how it engaged with the landscape, has rarely been discussed by scholars. Macdonald (2010) has been one of the few to propose an interpretation of the Safaitic carvings. He argues that the carvings were a form of pastime, idle graffiti made to pass the time away while, for example, being on the lookout for enemies or watching pasturing herds (Macdonald 2010). He proposes:

> *'Nomadic life involves long periods of solitary idleness, guarding the herds while they pasture, keeping a lookout for game and enemies, etc. Anything that can help pass the time is welcome. Some people carved their tribal marks on the rocks; others carved drawings, often with great skill. Writing provided the perfect pastime and both men and women among the nomads seized it with great enthusiasm, covering the rocks of the Syro-Arabian deserts with scores of thousands of graffiti. The graffito was the perfect medium for such circumstances. It could be as short or as long as the authors wanted, and since they were carving purely for their own amusement they could say whatever they liked, in whatever order new thoughts occurred to them, and it did not matter if they made mistakes. When they tired of carving their own graffiti, they could wander off and vandalize someone else's, often by subtly altering the letters to make it say something different, or by adding something rude!' (Macdonald 2010: 15)*

The pastime theory is inspired by the use of script by the Tuareg peoples of north-west Africa, who carve characters 'primarily for games and puzzles, short graffiti and brief messages' (Macdonald 2009). The pastime theory has been developed based mainly on the study of the texts and supported by only the one landscape study discussed above. Al-Jallad (2015: 3) has contrarily argued that the Safaitic inscriptions cannot be seen as 'unstructured self-expression, the outcome of boredom and knowledge of an alphabet'. He has shown that the inscriptions are highly formulaic, selective in their form and content, and clearly meant to be seen and read by others (Al-Jallad 2015). Furthermore, he points out that if the carvings were used as a way to pass the time away, we would expect a high proportion of names to repeat, but this is not the case (Al-Jallad 2015: 3).

In a study of the roughly contemporary Hismaic inscriptions and rock art from the Hisma Desert of southern Jordan, Corbett (2010) has shown that the carvings cluster in specific locations around drainage points of the wadis. Corbett (2010: 259) proposes that these were places where the nomads of the Hisma desert spent a lot of time, pasturing their herds or hunting wild animals. However, he argues that the engravings were not located here because they were places of significance; the places themselves had no influence on the texts or images (Corbett 2010: 259). It is not clear which role he instead believes the carvings had, but he does not agree that they were forms of idle graffiti (Corbett 2010: 259). Corbett (2010: 150) does propose that the dromedary camel images had a ritual function, intended as symbolic sacrifices to deities.

Similarly, Eksell (2002), focusing on the Ancient North Arabian carvings as a whole, has argued for a sacral function of the carvings, proposing that the images are forms of symbolic giving or sacrifice. She bases her conclusion on her interpretation of the formulaic content and syntax of Safaitic inscriptions. The inscriptions customarily start with 'l', the 'lām auctoris'. This is generally seen as a 'mark of authorship', usually translated as 'by' (i.e. 'By [name] is the camel') (Macdonald 2006: 294). This can be interpreted as the image is *by* this person (Macdonald 2006: 295). However, Eksell suggests it should be interpreted as 'for', which can denote a sacral meaning for the texts and associated image (Eksell 2002: 115-116, cf. Al-Jallad 2015: 4). However, as Macdonald (2006) and Al-Jallad (2015) have shown, the 'l' is simply an introductory particle to the phrase and its translation depends on the context. Therefore, it does not reveal anything about how to interpret the image associated with the text.

1.2.3. Herding and hunting landscapes

The extent to which the Black Desert societies relied on herding and/or hunting is currently difficult to reconstruct, but one key characteristic is apparent from the inscriptions and the archaeological evidence so far: a nomadic way of life. This entails mobility

Figure 1.7. A depiction of an oryx accompanied by an inscription stating 'By S²b son of Yṣḥḥ is the bull'. The word 'bull' in Safaitic refers to a male animal. Two other carvers have incised their names on this panel as well (QUR-256.48).

in the landscape, which can be defined as 'the capacity and need for movement from place to place' (Wendrich and Barnard 2008: 5). Cribb (1991) has drawn a distinction between the types of mobility patterns of pastoralists versus hunter-gatherers. The movement of pastoralists is organised and determined by the needs of their herds – pasture – while hunter-gatherers exploit a wider range of resources and move to exploit them accordingly (Cribb 1991: 21). However, archaeological and ethnographic studies have since shown that this dichotomy does not hold true for most societies (Wendrich and Barnard 2008: 6). For herding societies, mobility patterns were likely also driven by 'alternative aims', such as trade, raiding, agriculture, or sale of labour (Frachetti 2008b: 370, cf. Rosen 2017: 34). Additionally, it is important to note that one of the main characteristics of herding societies is that they are highly variable (A. Smith 2005a; Frachetti 2008b; Rosen 2008, 2017). The blurring of hunting and herding strategies, such as in herder-gatherers societies, would also have entailed different mobility patterns governed by a complex set of needs and desires.

The key characteristic of a nomadic way of life would have impacted how the peoples interacted with their landscape. I consider this as the way that people engaged in meaningful ways, including socially, ritually, and economically, with their environment, which includes the natural and anthropogenic elements and the wild desert fauna, domestic animals, and the peoples themselves that make up that environment. All of these aspects are not mere features of the environment or surroundings, but part of a cultural landscape. In a study of Bronze Age herders from Central Asia, Frachetti (2008a: 24) has proposed that mobile pastoralists use and invest in 'historically meaningful places that accumulate significance through a palimpsest of interactions'. He argues that their rock art is a form of social interaction with the landscape, highlighting and marking important places (Frachetti 2008a: 136). Based on the location of rock art and burials near winter settlements, Frachetti (2008a: 158) argues that these cultural remains may have communicated ownership or control, signifying territorial boundaries and engagement in these places.

Smith (2005a, 138), investigating ancient Saharan pastoralists, proposes that the herders followed known and repeated paths and that points along these paths become 'referents for passing on information to others and are embedded in historical narratives'. As a result, the landscape is 'a place of referents', part of the histories and beliefs of the people (A. Smith 2005a: 138, 2005b: 267). Rock art sites were one of the various, natural and cultural, types of important places that determined where these referents in the landscape were (A. Smith 2005a). These sites may have been part of the collective memory and thereby have become centres for ritual activity (A. Smith 2005a: 148). Holl (2004: 7) also sees the Saharan rock art as a way to mark social spaces in the landscape where ceremonial events occurred. He proposes that the rock paintings were made as part of initiation rites for young adults (Holl 2004: 129). Furthermore, Holl (2004: 12) argues that the rock art 'may have been produced from a cultural background of tension', a tension that exists in pastoralist societies because people need to cooperate to successfully raise livestock, but equally desire to express their individual power and status through the livestock's representation as wealth. Similarly, Brandt and Carder (1987) argue that the pastoral rock art from the Horn of Africa was a ritual event performed to reduce the tensions resulting from increases in population and competition for pasture in a changing climate. An increase in territoriality due to the need for pasture is seen by some scholars as a key characteristic of herding societies (e.g. A. Smith 2005a: Rosen 2008).

Conversely, others regard a strong notion of territoriality as a central feature of hunter-gatherer societies, setting them apart from pastoralists (Cribb 1991; Ingold 1986). It is noteworthy that hunter-gatherer rock carvings and paintings are therefore also frequently interpreted as territorial markers in the

landscape. Ingold (1986) argues that sites and paths in the landscape are important territorial places in hunter and gathering societies. Markers of boundaries function like signposts, 'comprising part of a system of practical communication rather than social control' (Ingold 1986: 157). Following on this, Bradley (1991, 1997) proposes that the prehistoric hunter-gatherer rock art of Britain functioned as markers and a form of communication. He demonstrates that the carvings are frequently found at paths and viewpoints and are often located in areas with less fertile soils (Bradley 1991, 1997). Bradley (1997: 92, 123) therefore argues that the rock art may have been used to mark places where territorial disputes could occur and, additionally, to mark 'specific thresholds on the journey across the country', the rock art determining the paths people should follow. In this way, rock art was an important way of emphasising the significance of important places in the landscape (Bradley 1997: 213). Similarly, Jones (2006: 222), in a study of the prehistoric rock art of Scotland, argues that the carvings were produced in geographically important places, ordering the landscape and highlighting 'features of past and future significance'.

In these studies of nomadic rock art, there is thus a general consensus that mobile communities often create, mark, and invest in places in the landscape and that rock art is one of the ways in which societies did this. Most of the models subsequently propose that this is a product or necessity of territorial disputes and negotiations, based on the perspective that territoriality is a key characteristic of both herding societies and of hunter-gatherer societies. While there can be strong evidence in support of interpreting rock art as territorial communication, such as for the 18th and 19th century Bedouin carvings from the Negev desert (Eisenberg-Degen *et al.* 2018), this needs to be demonstrated on a case-by-case basis. As discussed above, there is great variation within societies that practise a herding-based subsistence strategy. Interpreting their rock art therefore needs to take into account the facets of the culture, landscape, and time period of the society in question, as well as the particularities of the rock art itself. Furthermore, assuming territorial conflict to be the driving force behind communication in the landscape neglects the many other potential ways in which nomadic societies invest in and interact with their environment. Therefore, an in-depth study of the rock art record, working from the material up and exploring it as a form of cultural practice can provide significant insights into how we are to understand the rock art and, subsequently, how herding societies interacted with their landscape. In this book, I explore these issues through a study of Safaitic rock art, which dates to approximately the late 1st millennium BC to early 1st millennium AD, from the Jebel Qurma region in the Black Desert. The Safaitic rock art is especially well-suited to investigating the above-described issues because it is a fairly 'closed' cultural and temporal set of petroglyphs. Although questions still remain about the exact chronology of the carvings and the cultural relationship between the many carvers, the timespan is short and the region small compared to that of many rock art corpora.

1.3. Producing and consuming images

1.3.1. Introduction

This book has two aims. The first is to explore the Safaitic rock art as a *cultural practice*, i.e. a way of doing within a particular cultural context that can be studied through the content of the material, the process of its production, and process of its consumption. The second aim is to subsequently uncover, through the rock art, the nature of the human-landscape interactions of the peoples who created the Safaitic engravings in the desert landscape of Jebel Qurma.

This study is based on a dataset of rock art from the Jebel Qurma region in north-eastern Jordan (Figure 1.2). Annual fieldwork has been carried out in this region since 2012 by the *Jebel Qurma Archaeological Landscape Project*, consisting of intensive surveys and excavations of the archaeological and epigraphic remains from the Palaeaolithic up until the very recent past (cf. Akkermans *et al.* 2014; Akkermans and Brüning 2017; Huigens 2018). From 2014-2018, the spin-off project *Landscape of Survival* researched the inhabitation of this region in the 1st millennium BC to the 1st millennium AD, when a marked peak in human activity occurred. This book is based on research carried out by the author within this project, which also included a study of the Safaitic inscriptions (Della Puppa forthcoming) and of the artefacts and stone-built features (Huigens 2018; Huigens forthcoming).

The rock art was documented during surveys that were carried out during five fieldwork campaigns between 2012 and 2016. During these surveys a total of 241 sites with rock art were recorded, where altogether 2264 engraved boulders were found. In 2017 and 2018 the *Jebel Qurma Archaeological Landscape Project* focused more intensively on excavations; during this process, approximately 180 additional carvings were found, the majority of which are inscriptions, but due to time constraints these are not included in this study. The archaeological background for this study was carried out by Huigens (2018) and is also based on the results of the 2012 – 2016 fieldwork campaigns. The high resolution of data, rich dataset, and combination with the archaeological and epigraphic studies makes this a unique study for Safaitic rock art and Arabian rock art in general.

This study takes an archaeological, material approach to the rock art, investigating the content, production, and consumption of rock art. Two, often intertwined, developments in the rock art discourse are central to this and therefore warrant some discussion before I elucidate my approach. The first is the study of rock art in the landscape and the second is the 'material turn' in rock art research.

1.3.2. Landscapes of rock art

In his seminal work on the landscape and rock art of Atlantic Europe, Bradley (1997: 213) stated that 'it is because rock art is such an obvious way of assigning special significance to a place that it is best studied as part of landscape archaeology'. Bradley was one of several scholars who, towards the end of the previous millennium and start of the new, argued for and demonstrated the importance of studying rock art in its spatial context. This development witnessed a number of influential monographs and edited volumes on the topic (e.g. Bradley 1997; Chippindale and Nash 2004a; Nash and Chippindale 2002; Tilley 2004) and the study of landscape has become inextricable from the study of rock art.

While the context of any archaeological material is crucial to its study, rock art is unique due to it being, generally, fixed in place. As such, 'insecurity in time is compensated for by security in place...This gives a secure starting-point for one theme to rock-art research' (Chippindale and Nash 2004b: 7). Rock art's permanence in place means it is possible for the archaeologist to 'experience' it in its original setting (Byrne 2013: 63), to consider how it was once connected to the landscape, and to explore how the landscape might have affected the nature and significance of the ancient images.

Bradley (2002, 2009) has shown that the significance of 'where' can also provide insights into the question of 'who?'. He has argued that examining where in the landscape the rock art was 'displayed' can inform us about who the rock art was intended for (Bradley 2009: 45). For open-air rock art sites, one can question what their accessibility is; are they near paths or settlements or are they in hard to reach locations such as on cliffs or in the mountains (Bradley 2009: 46)? It thus entails considering accessibility and visibility of the rock art sites and the rock art itself. Additionally, one can consider how the landscape setting might have influenced how the art was viewed (cf. Morphy, 2010: 284). 'Rock art is...consumed as a very particular and emplaced form of material culture, influenced not only by a person's visual knowledge (or lack of) but also all the senses stimulated by its particular locale and setting in the wider landscape' (Byrne 2013: 63).

In recent years, there has been increasing emphasis on the study of the different scales of landscape at which the rock art might have been meaningful. For example, Chippindale (2004) defines four scales on which we can observe and compare rock art: the millimetre scale (individual peck marks), the centimetre scale (the figures and motifs), the metre scale (the panel and the relationship between figures), and the kilometre scale (the position of the panel in the landscape). Similarly, Gjerde (2010a, 2010b) defines two scales of perception

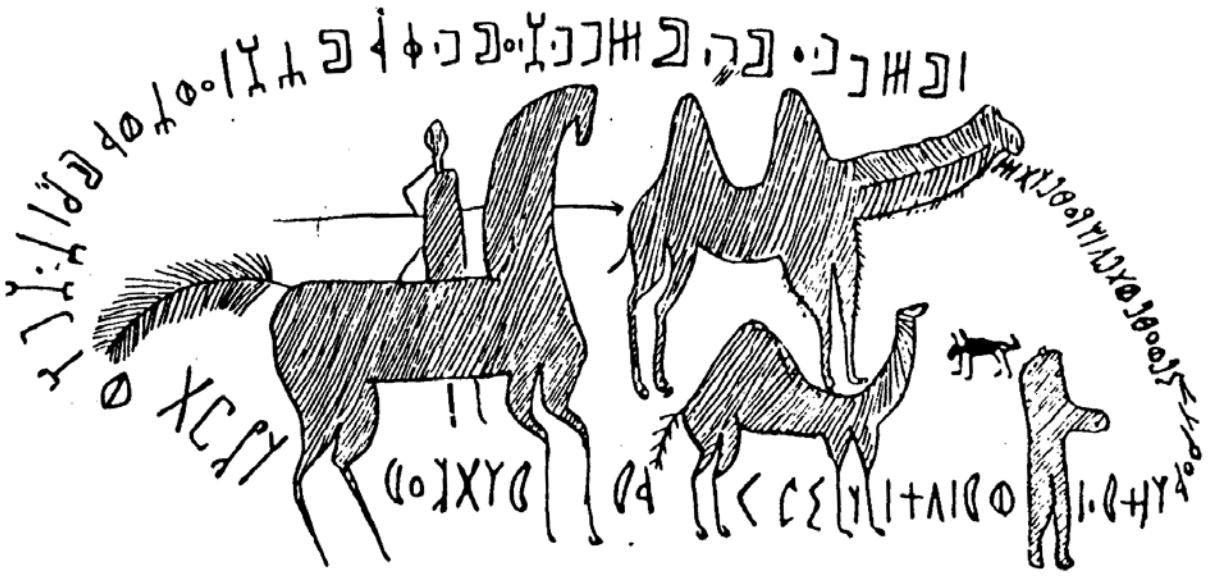


Figure 1.8. A tracing of a Safaitic rock art scene from southern Syria (LP 325). It was discovered and first documented at the beginning of the 20th century. This scene is often reproduced in publications, but, like most reproductions of the rock art, always as a tracing. (Image: Macdonald (1990, fig. 1), original tracing by Littmann (1943)).

of rock art: micro-landscapes, which include the figures, the panel, and the interaction between them, and macro-landscapes, which places the rock art in the wider landscape on site, regional, and interregional level.

While macro-landscapes of rock art have been studied intensively over the past two decades, micro-landscapes (and the connection between the two) are now receiving an increasing amount of attention. Numerous cases from open-air rock art sites in Europe are demonstrating how the surface of the rock panel has been used in the carving to represent elements of the physical environment and enhance the image (Bradley 1997; Gjerde 2010a; Helskog 2004; Nash 2002, 2017). For example, Gjerde (2010a) has shown that, at the site Nämforsen in Sweden, a large boat carving is located on the place on the panel where the water runs after a rainfall and, at the site Leiknes in Norway, two swan figures have been carved above a quartz vein in the rock, as if representing swans sitting on the water. These cases demonstrate how ancient artists sometimes replicated macro-landscapes in the micro-landscape of the rock art (cf. Nash 2002: 192). Investigating rock art at different scales opens up new possibilities to explore the different ways in which the images interacted with and were significant in the landscape. Simultaneously, the advancements that have been made in the use of GIS applications for landscape archaeology allow for the study of rock art on different scales using formal methodologies.

1.3.3. 'Rock' art versus rock 'art'

The investigation of rock art in the landscape is one way in which researchers have been attempting to move beyond a purely iconographic approach to rock art. In the last decade, especially, various scholars have been advocating a shift from the focus on the visual image to a focus on the medium on which the image is portrayed and the relationship between the medium and the image (e.g. Boivin 2008; Fahlander 2013; Lødøen 2010). This shift in focus has been inspired by the material turn in archaeology, which signalled a movement towards the study and understanding of 'the physicality of things', the physical properties and effects of materials and objects (Hicks 2010: 74). In rock art research, this has inspired scholars to recognise and stress the importance of the material – the rock – above or as well as the image – the art. This entails considering the various material affordances of rock, as Fahlander (2012: 100) has illustrated in the case of petroglyphs:

> *'To begin with, it is a hard material, which means that it takes time to peck images into stone. This implies that images are not randomly scribbled down, but that the size, depth, level of detail and style are carefully considered. A second aspect is the static nature and immovability of the rock, which together with its material qualities suggests a sense of endurance and promise of eternity. Thirdly, by being a resilient matter it may to a certain extent prohibit intentional or unintentional destruction.'*

In this vein, it can thus be argued that the production of rock art is not just the production of an image, but an interaction with the rock. This interaction may have been of great significance, constituting a particular cultural practice, or 'social action' (Cornell and Ling 2010, Lødøen 2010). Some scholars have consequently theorised that the practice of producing carvings may have been as or even more important than the final image itself (e.g. Herva and Ikäheimo 2002, Bradley 2009, Fahlander 2012). The rock can be seen as a fundamental part of this process; it is not just an empty canvas on which art is created, but a meaningful component (Boivin 2008, Lødøen 2010, Nash 2017). This is demonstrated by, for example, the creation of rock art micro-landscapes, like in the example of the boat carving described above.

Studying rock art from this perspective is an aspect of what some researchers have termed a 'non-representational approach' (Back Danielsson *et al.* 2012, Fahlander 2012, 2013). This entails moving away from trying to 'decode' or 'unveil' the meaning of the image (Fahlander 2012, 100). Instead, it places the emphasis, on the one hand, on the meaningful practice of producing rock art (e.g Lødøen 2010, Fahlander 2012), as outlined above. On the other, it entails considering the effect of images after production; their effect on people and their effect on the production of new images (Back Danielsson *et al.* 2012, Fahlander 2012). This perspective has been influenced by Gell's seminal work *Art and Agency* (1998) in which he regards art as having (secondary) agency, proposing that it is 'as a system of action, intended to change the world rather than encode symbolic propositions about it' (Gell 1998, 6). Gell's theory of agency has since been criticised in varying degrees (e.g. Layton 2003, Morphy 2009) and it has its flaws and contradictions that had Gell lived, various critics agree, he would have revised (Morphy 2009, 5). Regardless, Gell's theory has been influential for rock art research because of his emphasis on the power and effects of imagery (Fahlander 2012, 98). As summed up by Back Danielsson *et al.* (2012, 5): 'The pictorial...can have social implications beyond the intentions and ideas of producer and the consumer in a similar way to that of a certain object... The power of images not only lies in what it might represent or symbolise, but also in the way they interfere and are integrated in social life.'

1.3.4. Approaching rock art

These developments in the rock art discourse have in common that they have endeavoured to steer research away from the traditional iconographic perspective in which the study of rock art focuses on the depictions and their meaning. Instead, they pursue aspects central to the study of other archaeological materials: where is the material found and what are the processes that occurred before, during, and after conception and creation. The importance of the images themselves is not lost in these approaches, but it is recognised that rock art's significance may lie in more than just what it depicts. Similar approaches have been advocated in other disciplines dealing with visual materials, such as art history and visual culture studies. For example, Rose (2007) has proposed a methodology for studying visual culture based on examining the sites where images acquire meaning. Rose (2007: 13) argues that the meaning of an image is made at three sites: 1) the site(s) of production – how an image is made; 2) the site(s) of the image itself – what the image looks like; and 3) the site(s) where the image is seen by various audiences – how the image is seen. Although the material turn in rock art research has seen a shift away from the focus on the image, Rose's methodologies show the importance of also giving this due attention as *one* of the ways in which visual materials gain meaning. Rose (2007: 39) warns that 'visual images do not exist in a vacuum, and looking at them for "what they are" neglects the ways in which they are produced and interpreted through particular social practices'. However, she argues that it is a useful method *if* combined with other methods that also take these elements into consideration (Rose 2007: 57).

It is interesting to note that the three sites of meaning outlined by Rose (2007) are almost always the same place in the case of rock art. It is one of the few archaeological materials that tend to remain *in situ* and whereby the site of production, the image, and later 'viewing' is the same. For this reason, a tripartite approach is especially well-suited for rock art studies. However, it is noteworthy that few studies have combined the investigation of petroglyphs' or pictographs' content, production, *and* consumption. Most studies focus on one or two of these aspects. This study instead takes a holistic approach, investigating the content of the Jebel Qurma images *and* how and where the rock art was produced and consumed. In this way, it is possible to understand the rock art as a form of cultural practice, a way of doing things within a particular cultural context. This recognises that the significance and role of visual materials can be acquired, formed, and altered during different processes, including production, consumption, and the content.

1.3.5. Producing and consuming images

The rock art content forms an important basis for the understanding of ancient petroglyphs. What kind of representations were being produced and why? And what is not depicted? Can we detect the intentions behind their conception? Subsequently, the image forces one to consider what its effect might have been on viewers and whether consumers interacted with particular types of images. The content can thus also play an important role in the processes of production and consumption. Indeed, 'the capacity of human beings to create representations that take into account the ways they will be interpreted and the effect they will have in context is what makes art a powerful resource for action' (Morphy 2010: 283). Exploring content is especially important for understanding rock art corpora that have not been studied thoroughly yet. In the case of the Black Desert rock art, of which little is known, an understanding of the content provides a foundation for further analysis. The content will therefore be investigated through a study of the motifs and scenes that are depicted in the Jebel Qurma rock art. In particular, what selection is visible in what is and is not depicted and how does this relate to the environment and world of the carvers? These questions form the focus of Chapter 4, which follows after a brief overview of the topography, environment, and archaeology of the research area (Chapter 2) and a description of the methodology used in this study (Chapter 3). A list of the rock art motifs, their description, and examples can be found in the identification manual in Appendix C.

Subsequently, investigating the production of the images and their consumption can elucidate how and at which stages the carvings acquired meaning, who made and used the rock art and on which occasions, and how these processes were intertwined with the landscape. Production and consumption can be investigated through their *traces* in the rock art and through the *places* where these processes occurred. The traces of production and consumption are the subject of Chapter 5. The traces of production can be detected in the techniques used and the *chaîne opératoire* of carving. Additionally, it entails a study of the form, or style, of the carvings, which can be seen as linked to the socio-cultural ideas behind the production process (cf. Domingo Sanz 2009). Studying these traces in the rock art can elucidate how and at which stages the carvings acquired meaning and what the purpose of their creation might have been. Additionally, it can provide insights into who made the rock art and on which occasions.

Consumption is a well-researched concept in material culture studies but has not been employed often as a term in rock art research (but see Byrne 2013; Lewis-

Williams 1995). As a broad definition, it is 'a material social practice involving the *utilization* of objects' (Dietler 2010: 209, original emphasis). In the study of rock art, the notion of utilisation is complex because the way that rock art is *used* is dissimilar to many other types of material culture. Rock art can be viewed, modified, superimposed, destroyed, or ignored. In this sense, the term consumption for this process and the term consumers for the people involved are perhaps imperfect. Other studies that have looked at consumption have used the term 'the audience' (e.g. Bradley 2002; Bradley 2009; Purcell 2002). However, as is implied by the term, the audience is often studied as passive viewers of the rock art rather than people who may actively engage with the rock art in a wide range of ways. Perhaps, as a result, rock art research has tended to focus on one or more of the aspects of consumption *or* on the consumers themselves. For this reason, instead, I use the term 'consumers' and 'consumption' to more fully capture the range of interactions that can occur between people and rock art after it has been created.

The modification of images, superimposition of new images on top of older ones, duplication or purposeful accumulation of figures, or the destruction or effacing of images can all be seen as direct traces of positive or negative interactions with rock art. Additionally, it can be valuable to consider which choices are being made in consumption, i.e. what was not 'consumed'? (cf. Dietler 2010). Which images were ignored or left alone? Through studying the traces of these interactions, it may be possible to discover who the consumers of the rock art were, how they interacted with the carvings, when people 'consumed' the carvings, and what kind of processes the rock art underwent in its meaning and significance during consumption. Although it may not be possible to determine this meaning, it may be possible to understand how, when, and to whom the images were meaningful (cf. Bradley 2009: 47).

Subsequently, studying the places of production and consumption through the rock art's location in the landscape can provide further insights into these two processes. What does the location in which the carvings were 'placed' say about the production process, the intentions behind it, and the people producing them? And what do the locations reveal about who interacted with the rock art and in what way? Examining where in the landscape the rock art was 'displayed' can inform us about who the rock art was intended for (Bradley 2009: 45). On the contrary, it can also reveal whether the rock art was actually produced to be seen by others and, if seen by others, how its situation in the landscape could have influenced how the art was viewed. Both production and consumption can be investigated at micro and macro-levels of the landscape. These questions form the focus of Chapter 6. In the final chapter of this book, Chapter 7, I discuss how, based on the content, production and consumption, we can understand Safaitic rock art as a cultural practice in the nomadic societies that carved it and what this reveals about how the nomads interacted with the desert landscape around them.

1.4. A note on terms and references

This study recognises how problematic the term *rock art* is, as many others have already done (Bradley 1997, Whitley 2001). The word 'art' suggests an aesthetic component, akin to the definition of art in the Western world. However, like other scholars, I choose to employ the term *rock art* as a technical term, conscious of its background and limitations (cf. Bradley 1997; Lewis-Williams 2004; Whitley 2001). In this study, *rock art*, *petroglyph(s)*, and *pictorial engravings* will be used interchangeably to denote carved images, while *inscriptions*, *texts*, and *textual engravings* will be used to refer to the carved writings. The terms *engravings* and *carvings* will be used interchangeably to denote images and inscriptions collectively. Furthermore, in this study, I follow the conventional terminology of rock art research as set out by the *International Federation of Rock Art Organisations* (IFRAO) in its glossary (IFRAO 2018), which was created to standardise terminology across disciplines and countries. A list of the main rock art terms used in this dissertation and their definitions can be found in Appendix A.

This book uses the conventional style when referring to Safaitic inscriptions: the siglum of the edition of the inscription and its identification number, for example, WH 1516 (Winnett and Harding 1978, inscription number 1516). The siglum and identification number of the inscription are stated in a footnote and the references for all sigla can be found in Appendix B. All inscriptions were accessed and can be accessed by the reader through *The Online Corpus of the Inscriptions of Ancient North Arabia* (OCIANA).[1] All inscriptions and petroglyphs from Jebel Qurma will be referred to using the siglum 'QUR-' and their identification number.

1.5. A note on the figures

All photo credits, unless otherwise stated, are 'Jebel Qurma Archaeological Landscape Project'. All tracings were made by the author. Each figure caption includes the reference to the identification number of the site and rock panel. All scaled photos include a 5 cm scale bar unless otherwise stated.

[1] http://krc.orient.ox.ac.uk/ociana/index.php.

Chapter 2

The Jebel Qurma landscape

2.1. Introduction

The Jebel Qurma region is situated on the western edge of the Black Desert, in the northeast of Jordan and about 30 km east of the modern town of Azraq. It is part of the eastern desert of Jordan, known as the eastern *badia*. The research area is 336 km^2 and is situated on the border zone between the basalt uplands of the *harra* and the plains of the *hamad* (Figure 2.1). It is strategically located at the convergence of several natural passages through the basalt and near the crossroads of trade routes through the Ancient Near East. The region is named after the prominent hill of Jebel Qurma, which locally marks the beginning of the *harra* in the east. The area surveyed between 2012 and 2016 lies in the western part of the Jebel Qurma region and comprises 52 km^2 (Figure 2.2). This area is bordered by Wadi Rajil in the west, the mudflat Qa'a al-Teyarat in the north, and the Hazimah plains in the south.

The nature of the Jebel Qurma landscape affected and to some extent determined how people moved through the region and left their mark on it. The aim of this chapter is to provide an impression of the environment and inhabitation of the landscape in which the ancient nomads made their carvings approximately 2000 years ago. This includes, first, a brief outline of the topography and environment of this region. Second, I describe the archaeological structures that were built and reused during the Hellenistic and Roman periods, the approximate period in which the Safaitic carvings were made. In the final section, I contextualise the rock art within this Jebel Qurma landscape. For a detailed description of the geology, topography, environment,

Figure 2.1. Satellite imagery of the research area Jebel Qurma (outlined in red), with relevant features labelled. Base map: Landsat 7, true colours.

Figure 2.2. The area surveyed between 2012 and 2016 (in grey) in the Jebel Qurma region. Base map: Landsat 7, true colours.

and archaeology of the Black Desert and the Jebel Qurma region, I refer the reader to Huigens (2018; forthcoming).

2.2. Topography

The Black Desert is characterised by the fields of dark basalt boulders, from which the desert lends its name. The volcanic rocks cover the surface of the *harra* uplands, which is a rocky and undulating terrain with endless basalt plateaus and high hill peaks (Figure 2.3, 1.3). The *hamad* plains that surround the basalt are more easily accessible, covered here and there with basalt and flint gravel (Figure 1.3). A number of key landscape features are situated within the Jebel Qurma region. On the west side of the surveyed area lies Wadi Rajil, which originates from Jebel Druze in Syria (Figure 2.4). The hill of Jebel Qurma is a prominent landmark in the west, where it is visible from afar (Figure 2.5). The mudflat, Qa'a al-Teyarat, forms a large, low-lying border in the north of the survey terrain (Figure 2.6). The *harra* is not one endless plateau but is interrupted by smaller valleys, wadi systems, and mudflats, creating natural passageways through the basalt. Together with the presence of small, separate basalt plateaus and local hillocks, these various features make up for a diverse landscape within the Jebel Qurma region. In Chapter 6, I describe this landscape in more detail.

2.3. Environment

The Black Desert of northeast Jordan is today generally considered an arid and harsh environment. Summers are hot, with average temperatures of 35 to 38 °C and maxima of 46 °C (Akkermans *et al.* 2014; Huigens 2018). However, large catchments of rainwater can lead to sizeable bodies of water. Most of the rain falls in the winter, when the temperatures average 2 to 9 °C and cold air gusts prevail. However, the rainfall is highly variable with the possibility of winters with very little precipitation and long drought spells (Al-Homoud *et al.* 1995; Huigens 2018). The oasis town Azraq is one of the few permanent water sources in the area. Most of the rainfall is carried off to wadis or mudflats (*qa'a* in Arabic, singular), which can fill with water or hold sub-surface moisture (Huigens 2018: 21). The desert vegetation is sparse, with mostly shrubs and grasses and few trees; it varies seasonally depending on rainfall (Huigens 2018: 23, 43). Today the only inhabitants of the region are small Bedouin

Figure 2.3. The basalt-strewn surface of the *harra*

Figure 2.4. a) Wadi Rajil, lined by small shrubs, cuts through the valley in between the basalt hills. Photo taken from the site QUR-683. b) A herd of camels drinks from the small amount of water present in Wadi Rajil (photo was taken in May 2015).

groups that occasionally visit the desert with their camel, sheep, and goat herds when pasture is good and water is plenty (Rowe 1999) (Figure 2.7, 2.4).

Palaeoclimatological evidence is sparse for the eastern *badia* so it is difficult to reconstruct the past environment. However, there are some indicators that the climate and ecology were slightly more favourable than it is today. At one of the sites in Jebel Qurma (QUR-595), wood from a Late Hellenistic context was found belonging to a tree species, ash, that is associated with more humid habitats than the current Black Desert climate (Huigens 2018: 116). Additionally, the nearby town Azraq was a thriving oasis only half a century ago. Before the 1980s, when water pumping increased significantly, the oasis was a major attraction for migratory birds (RSCN 2015). Just over a half century before that, a large diversity of carnivorous and herbivorous mammals inhabited the Black Desert. Trapping, poisoning, motorised hunting, and habitat modification has rendered almost all of them endangered or extinct in the area today (Hatough-Bouran and Disi 1991; Mountfort *et al.* 1965). The presence of these animals in antiquity is attested by the depiction of them in the rock art and by zooarchaeological evidence (see Chapter 3). The desert ecology was thus more diverse and richer than it is today. The vegetation and climate overall may have been more favourable as well, but this cannot be ascertained with the current evidence. Either way, it is likely that the inhabitants of the region in antiquity also dealt with the typical problems associated with a desert environment, such as low rainfall and droughts, as complaints and appeals to deities about these matters are mentioned in Safaitic inscriptions (Al-Jallad 2015; Della Puppa forthcoming; OCIANA 2017).

Figure 2.5. A view of the large mudflat Qa'a al-Teyarat

2.4 Archaeological remains from the Hellenistic and Roman periods

The Safaitic carvings have conventionally been dated to between the 1st century BC and the 4th century AD, thus the Late Hellenistic period and Roman period. This is based on references in Safaitic inscriptions to political events that date to the Nabataean and Roman periods and on the fact that there are no known references to Christianity (Al-Jallad 2015: 17).[1] Most scholars agree that this chronology is unsatisfactory and that the practice of making these carvings may have started earlier and ended later (Al-Jallad 2015: 17). However, it allows us to approximately situate the carvings in time and consider their production within the context of the Hellenistic and Roman periods.

The history of inhabitation of the Jebel Qurma region begins much earlier and continues, albeit punctuated, until today (Akkermans *et al.* 2014; Huigens 2018). While there appears to have been a lot of activity in the region in prehistory, there is subsequently a gap in substantial evidence for inhabitation in the early to mid-1st millennium BC. A few broad absolute dates and one artefact indicate that there might have been activity in the region during the Iron Age (1200–550 BC), but more research is needed (Huigens 2018: 201). There then appears to have been a peak in activity, with absolute and relative dates from various contexts providing concrete evidence for inhabitation from the 4th and 3rd centuries BC onwards (Huigens 2018).

2.4.1. Funerary structures

A number of stone-built funerary structures have been dated to the Hellenistic and subsequent Roman period based on radiocarbon dates, Optically Stimulated Luminescence (OSL) dates, and artefacts. One type is the so-called tower tomb, a large burial cairn with a tower-like façade (Figure 2.8). Another type of cairn dated to this period is the ring cairn, which may be a slightly earlier type (Huigens 2018: 209). At a number of cairns, pendants were added to the structure, a string of small piles of stones (Figure 2.9). Their function is unclear, but they appear to be related to the funerary practice. Rock art and inscriptions often appear to cluster around tower tombs and other types of burial cairns, but excavations in the Jebel Qurma region showed that, in the majority of cases, the carvings must have already been present when the cairns were built (Huigens 2018) (see Chapter 6.3).

There are two Safaitic inscriptions in the Jebel Qurma region that refer to 'the cairn' and a possible third. One was found near a burial cairn and may thus refer to this structure, although the chronology of this cairn and its exact relationship to the inscription is still ambiguous (see Chapter 6). The other was found at a site with various structures, including a wheel, clearings, and so-called 'hut' structures.[2] The translation of the third inscription is indeterminate; it may refer to 'the cairn'.[3] The only structure nearby was a small marker. The existence of inscriptions in the Jebel Qurma region and other areas in the *harra* referring to cairns indicate that these peoples built cairns for their dead. The most famous and concrete example is the so-called Cairn of Hani, a burial cairn found in the *harra* north of the Jebel Qurma region with numerous inscriptions around it referring to the name 'Hani' and stating that the cairn was built for him (Harding 1953). These examples indicate that building burial cairns was part of the funerary customs of the nomads who made the Safaitic carvings.

[1] For example, the inscription 'By Mḥwr son of Ġṭfn son of ʾḏnt and he returned to a place of water with his goats the year the Persians waged war upon the people of Rome at Bṣry *qṭrz*' (C 4448).

[2] QUR-143.2.1

[3] QUR-936.1.1

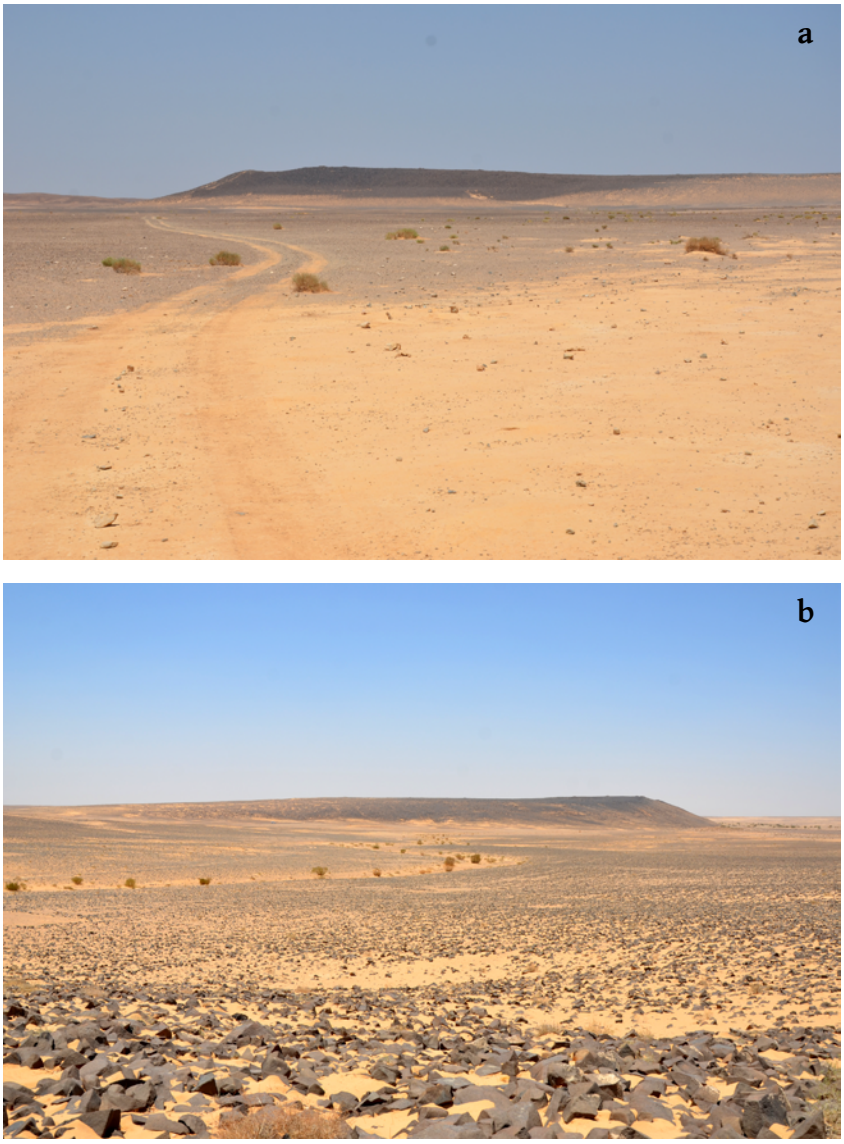


Figure 2.6. a) The Jebel Qurma hill seen from the south, from the Hazimah plains. b) Jebel Qurma seen from the northeast.

Figure 2.7. A herd of camels pastures on the slopes of the Jebel Qurma hill

2.4.2. Residential structures

In the Hellenistic and Roman periods, a number of different 'residential' types of structures were built and reused. Clearings, areas that have been cleared of the surface stone cover to create an open space, and several campsites were dated to this period based on ceramics (Huigens 2018: 202, 209). The surveys also revealed a large number of enclosures, 'walled structures enclosing a space that may or may not have been clear of basalt boulders', which were probably used as residential areas or animal pens (Huigens 2018: 64). Many of the enclosures may have been built in prehistory already, but ceramics from the Hellenistic and Roman periods attest to their reuse in these periods (Huigens 2018: 64). Furthermore, 12 Safaitic inscriptions refer to 'enclosure' in the text, of which the most common configuration is 'By [name] is enclosure' (Della Puppa forthcoming). Several of these were found at sites with enclosures (Figure 2.10). It is unclear whether these texts should be interpreted as the author built the enclosure, used the enclosure, or something else (Della Puppa forthcoming), but the attestation of this word indicates that the enclosures were used by the Safaitic carvers. Other types of stone constructions, such as stone markers, were found in the Jebel Qurma region, but these were most likely constructed in later periods (Huigens 2018).

2.4.3. Reuse of older structures

The authors of the carvings may have reused or had an affinity with other older structures. Some small cairns in the Jebel Qurma region have been dated to the late Early Bronze Age (Akkermans and Brüning 2017; Huigens 2018). However, they were rarely reused in the Hellenistic and Roman periods; instead, the inhabitants of this period appear to have mostly constructed new funerary

Figure 2.8. The Tower Tomb cairn at the site QUR-186. Scale bar = 50 cm.

Figure 2.9. Aerial photograph of a Pendant and cairn in the eastern *badia*. Photo by Don Boyer, courtesy of APAAME 2011.

Figure 2.10. Low stone-walled enclosures at the site QUR-20.

monuments (Huigens 2018, 208). Several of these have used stones carved with Safaitic inscriptions and images in their construction (see Chapter 6.3).

There are two types of stone-built architectural features that do appear to have been reused repeatedly through time. The first is the 'desert kite', a huge structure consisting of long walls ('guiding lines') that end in a large enclosed space, which has a number of small enclosures ('cells') adjacent to it (Figure 2.11) (Barge *et al.* 2015). There are 11 documented kites in the surveyed area of the Jebel Qurma region (Huigens 2018). Desert kites are commonly interpreted as hunting installations, whereby wild animals are herded through the funnel created by the long walls and trapped and killed in the enclosure (Chahoud *et al.* 2015). However, there is as of yet little concrete evidence that this is how they were used (Chahoud *et al.* 2015).

The dating of the kites is a much-debated topic, but there is evidence that at least some of these structures are prehistoric in date (Betts and Burke 2015). They appear to have remained in use or of importance in later times though, as evidenced by depictions of kites in rock art from the Black Desert. The most famous example was found at the Cairn of Hani and clearly depicts a desert kite in use, associated with a Safaitic inscription (Figure 2.12). Although it has been disputed whether it portrays a hunting or herding scene (Macdonald 2005; Maraqten 2015), the depiction clearly shows the use of a desert kite. There are several other rock carvings of desert kites from the eastern *badia* (Helms and Betts 1986). Two carvings of kites were found in the Jebel Qurma region (see Chapter 4.5.2). The

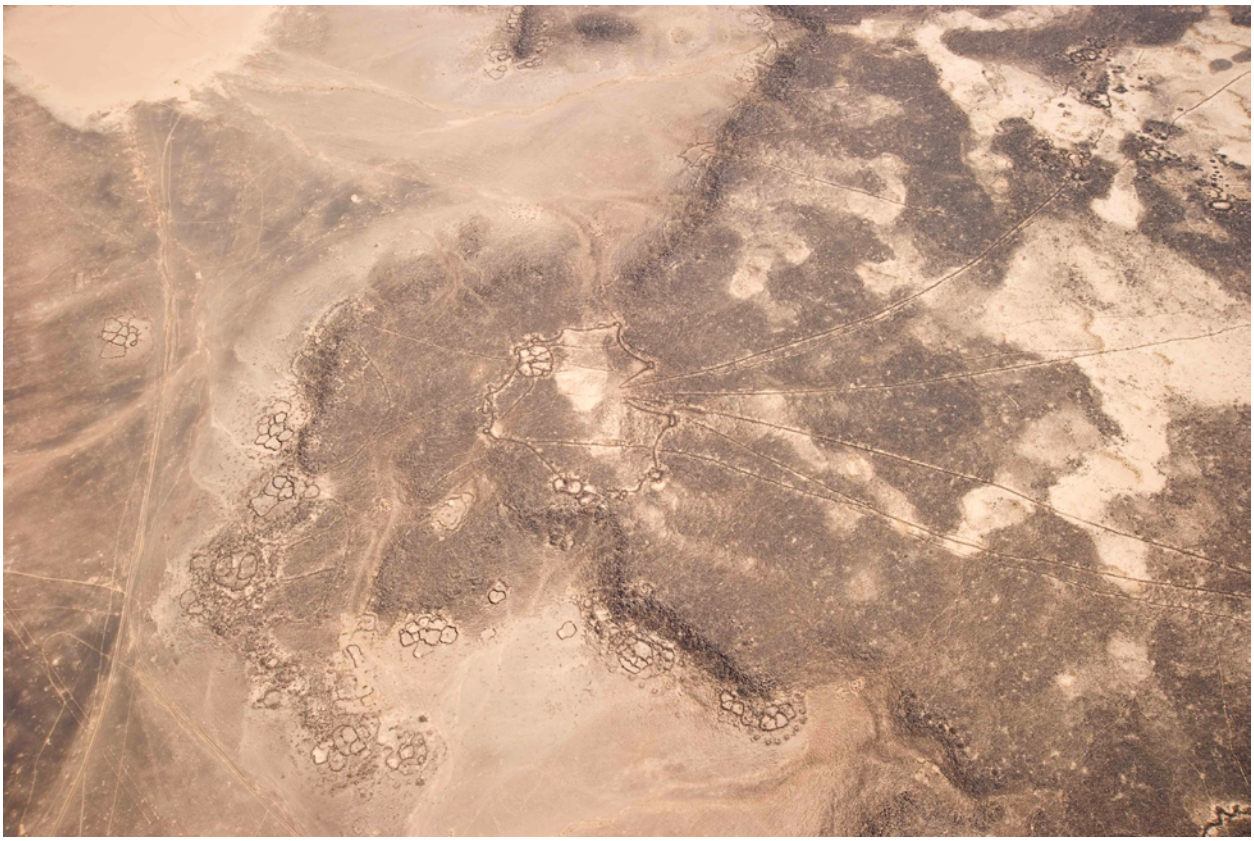


Figure 2.11. Aerial photograph of a desert kite in the eastern *badia*. The long walls or guiding lines lead to a large enclosed space which has smaller cells adjacent to it. Photo by David Kennedy, courtesy of APAAME 2010.

depictions of desert kites in rock art suggest they were reused by or held importance for later societies.

The second type of structure that was already present in the landscape and possibly reused in antiquity is the 'wheel'. These are circular enclosures grouped together in a wheel-like shape (Figure 2.13). Their function is unclear and the date of origin is unknown. However, recent investigations in the Jebel Qurma region and elsewhere in the Black Desert suggest they were constructed in prehistory (Akkermans *et al.* 2014; Huigens 2018: 74). Of the numerous wheels in the Jebel Qurma region, several yielded ceramics from the Classical to Late Antique periods, suggesting they were reused for domestic purposes then (Huigens 2018: 75). There are also four rock carvings from the study area that may represent wheels (see Chapter 4.5.1).

Huigens (2018: 79) has also identified the presence of paths running through the basalt (Figure 2.14 & 5.62). They do not appear to have been intentionally 'built', but have instead been formed through the repeated movement of people and animals through the landscape (Huigens 2018: 80). Although a large number of smaller paths are present in the region, it is not possible to date them directly and determine which of them already existed in the Hellenistic and Roman periods. However, a number of major routes that extend through the region were probably already present and in use, such as the valley of Wadi Raji and the area around Qa'a al-Teyarat.

2.4.4. End of production?

According to the conventional dates, Safaitic carvings ceased to be produced around the 4th century AD. This coincides with a cultural change in the Jebel Qurma region, but not the end of inhabitation. For example, the construction of burial cairns appears to stop after the 3rd or 4th century AD and inhumation graves appear instead (Huigens 2018: 210). The continuation of inhabitation and use of the area is evidenced by the dated inhumation graves, relatively large amounts of ceramics dating to the Byzantine and Early Islamic periods, and radiocarbon dates from enclosures and clearings (Huigens 2018: 202). The region thus continues to be inhabited throughout the 1st millennium AD by nomadic groups, based on the archaeological evidence (Huigens 2018: 202). It is unclear whether the Safaitic carvings continued to be produced or not.

2.5. Contextualising the rock art

The Safaitic rock art and inscriptions of the Jebel Qurma region can be found engraved in the dark basalt rocks of the *harra* uplands. These uplands

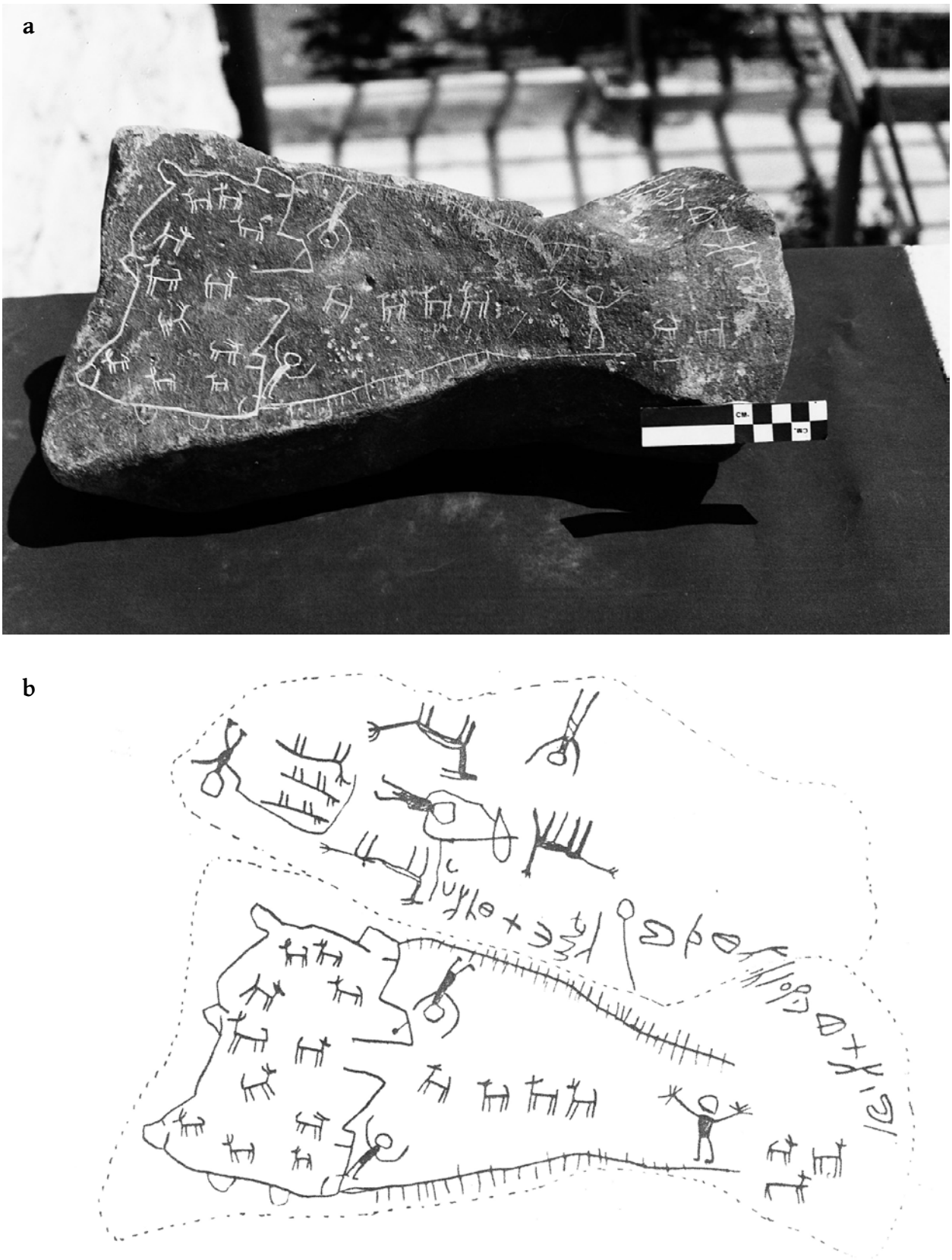


Figure 2.12. a) Photo of one side of the Safaitic engraving of a desert kite found at the Cairn of Hani. Scale bar = 10 cm. b) Tracing of both panels of the engraving (HCH 73). OCIANA 2018.

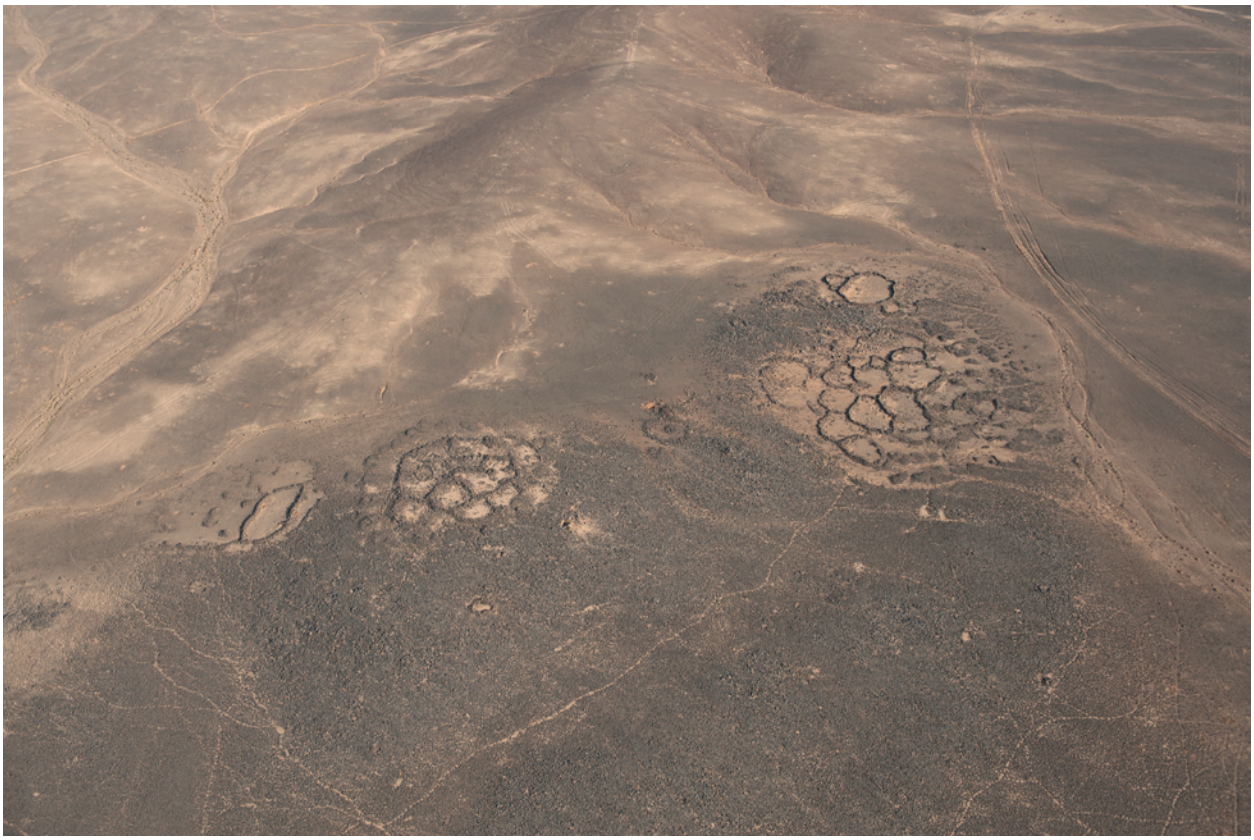


Figure 2.13. Aerial photograph of wheels in the Wadi Rajil area. Photo by David Kennedy, courtesy of APAAME 2011.

Figure 2.14. Path through the basalt in the Jebel Qurma region. Scale bar = 50 cm.

are diverse, with long basalt plateaus and prominent hilltops, intersected and bordered by wadi systems and mudflats. Surrounding this area are the low-lying plains of the *hamad*. The topography and environment of this region appear to have remained relatively stable throughout antiquity, although the availability of water and vegetation may have fluctuated (Huigens 2018: 209). There are indications that the environment might have been slightly more humid and thus perhaps more favourable in the Hellenistic period, but more research is needed to verify this. The harsh landscape would have hosted more life 2000 years ago when the desert fauna, which has all but been eradicated in the last century, was still diverse.

When the production of the engravings started and ended precisely is unclear, but it is clear from the archaeology that the creation of the rock art and inscriptions was part of a long history of inhabitation in the Jebel Qurma region. Different types of structures, such as kites, wheels, cairns, and enclosures, had been constructed in prehistory and were part of the landscape that the later nomads inhabited. These structures were also reused and perhaps held significance for these peoples. In the Hellenistic and Roman periods, new types of structures were built and used, such as tower tombs, ring cairns, clearings, and campsites. Although it remains difficult to link the archaeological remains directly to the people who made the Safaitic carvings, it is now clear that there

was increased nomadic activity in the Jebel Qurma region from the beginning of the Hellenistic period on and throughout the periods to which the carvings have conventionally been attributed.

Chapter 3

Investigating content, production, and consumption

3.1. Introduction

The aim of this chapter is to provide an overview of the methodology used in this study to research the rock art of the Jebel Qurma region. Annual fieldwork has been conducted in this region since 2012 by the *Jebel Qurma Archaeological Landscape Project*. This chapter provides an overview of how the rock art dataset of this study was collected and documented during fieldwork and describes the methodology used to subsequently analyse the content of the rock art, the traces of production and consumption, and the places of production and consumption.[1] While this chapter presents a methodological overview for this study, this book also endeavours to provide inspiration for future rock art studies. Researching rock art that has barely been studied before in under-explored and environmentally challenging regions can be a difficult enterprise and it is my hope that the methods described here can provide ideas for other researchers facing similar challenges.

3.2. Discovery and documentation of rock art

The rock art under study in this book was collected during the five fieldwork campaigns carried out in Jebel Qurma from 2012 to 2016.[2] Fieldwork continued in 2017 and 2018, during which campaigns approximately 180 additional carvings were found, the majority of which are inscriptions. Due to time constraints, these are not included in this study. During each of the five fieldwork campaigns, between two and ten weeks were spent surveying. In this period, the western part of the Jebel Qurma region, 52.1 km^2 in total, was surveyed (Figure 2.2). The sampling strategy that determined the area is based on surveying a wide variety of the different topographic areas within the region (Huigens 2018: 49). In the *harra*, this included the different basalt plateaus, valley systems, wadis, and the majority of the area around the large mudflat Qa'a al-Teyarat. The *hamad* terrain has been surveyed as well, but no pictorial engravings have been found here (see below). Preparatory remote sensing was carried out for the entire region to identify sites with large structures, such as cairns, wheels, pendants, and kites. Subsequently, surveys were carried out on the ground, which consisted of thorough field walking to document sites that had been identified using remote sensing and discover and document new sites. The entire terrain of the survey area was surveyed intensively and all visible structures, artefact assemblages, and engravings were documented, leading to a very high resolution of data.

Sites have been defined as an assemblage of archaeological and/or epigraphic remains, including structures, artefacts, rock art, and inscriptions, clustered within an area determined by natural topographic boundaries or arbitrary boundaries (Huigens 2018: 51). This methodology was developed based on the terrain of the basalt region and the nature of the archaeological and epigraphic remains. Thus sites can range from large clusters of stone structures, artefacts, rock art, and inscriptions to several isolated engravings or artefact scatters with no associated structures (Huigens 2018: 51). Each site was assigned a site number with the prefix QUR- (e.g. QUR-148) and was documented thoroughly using photographs, field drawings, field reports, and GPS measurements. The structures, artefacts assemblages, and rock carvings at each site were each documented individually as well.

The striking orange-red colour of the Safaitic carvings makes them highly visible in the field and could therefore quickly be identified. At the sites where engravings occurred, these were first all identified and given a number (Figure 3.1). All types of engravings (Safaitic pictorial and textual carvings and modern carvings) can occur on the same rock panels, with the modern engravings sometimes superimposed on the Safaitic ones (Figure 3.2). Panels were therefore identified and numbered under the collective term Rock Art with the accompanying prefix RA (e.g. RA3). Each panel was documented using photographs and a field form. The field form focused on the recording of the panel information, including the types of engravings present, the state of preservation, and any association with structures. The photographs aimed to document the landscape setting of the panel, the panel itself, and the individual figures and inscriptions and their details. Tracings of the engravings were not made due to their time-consuming nature and the sheer number of engravings. From the fieldwork campaign 2015 onwards, a GPS reading was taken for each individual panel. Prior to 2015, GPS measurements were taken per site.

The five surveys led to the discovery of 311 sites with Safaitic engravings. Pictorial engravings were found at 241 of the 311 sites. Surveys were carried out in

[1] For a detailed description of the general fieldwork methodology and of the documentation and analysis of the archaeological structures, I refer the reader to Huigens (2018; forthcoming).

[2] I participated in and carried out the rock carving surveys in 2015 and 2016, but many team members and students contributed to collecting the data used in this study.

Figure 3.1. Flags mark the position of carved panels at the site of QUR-370. In the background a team member surveys for carvings.

Figure 3.2. A panel covered with Safaitic engravings and, on the right with a lighter patina, Arabic inscriptions, a *wasm*, and a modern camel carving superimposing the Safaitic carvings (QUR-64.73). Scale bar = 20 cm.

Figure 3.3. A panel engraved with a *wasm* (plural: *wusūm*) in the Jebel Qurma region (QUR-1022.2). The patina of this carving is much lighter than that of the Safaitic carvings.

the *harra* and the *hamad*, but only two inscriptions were found in the *hamad*. No rock art was found there. Two inscriptions engraved in limestone rocks from the *hamad* were also found in the basalt. The carvings are thus found almost exclusively in the basalt region and engraved in basalt stones. Limestone is a much softer rock than basalt and thus weathers faster, so it is possible that other engravings existed in the *hamad* or on limestone panels. However, the existence of a few inscriptions on limestone indicates that they do preserve. Therefore, it is unlikely that the engravings were first distributed widespread across the *hamad* as well and that all but a few have eroded.

3.3. Post-fieldwork processing

3.3.1. Rock art chronology

Engravings from different periods have been found in the Jebel Qurma region. These can be divided roughly into three typological and chronological categories: Safaitic engravings, medieval and modern Arabic engravings, and *wusūm* (also sometimes known as tribal marks). The Arabic engravings and *wusūm* are much younger than the Safaitic engravings, dating to, broadly, the 2nd millennium AD, with many dating to the 19th and 20th centuries (Berghuijs 2017) (Figure 3.3). The vast majority of these engravings are either texts or, in the case of the *wusūm*, geometric marks, and are not associated with a pictorial engraving. There are no clear indications for Neolithic rock art in the Jebel Qurma region such as those found further north in the *harra* (cf. Betts 1987). However, there is one petroglyph that probably pre-dates the Safaitic carvings. It is an abstract figure that is much more weathered than the Safaitic inscriptions on the same panel (Figure 3.4). No other similar figures were found.

This study limits itself to the investigation of the Safaitic rock art of the Jebel Qurma region. The few Arabic pictorial engravings and the *wusūm* were therefore not included.[3] Rock art, in general, is notoriously difficult to date and petroglyphs even more so due to the lack of absolute dating methods applicable to carvings (cf. Bednarik 2002). However, the association of Safaitic inscriptions with rock art allows us to place the images in the relatively closed timespan of the late 1st millennium BC to the early 1st millennium AD. Associating the petroglyphs with the inscriptions has been done based on one of two conditions. The first is the direct association between an image and a text. The majority of the images are 'signed' by the person who made it, the author of the accompanying text. Many of these refer directly to the image. For example, in Figure 1.6, the author refers to the image, stating 'By Rāgel son of Zamhar son of 'Aus are the animals'.[4] In some cases, the carver only signed his name next to the depiction (Figure 3.5)

The second condition applies to petroglyphs that are not accompanied by a text. In these cases, the petroglyph was included in this study if it could be associated with the Safaitic carving tradition based on the similarity with known Safaitic carvings in style, content, and patina. The combination of these three criteria in a petroglyph allows it to be identified relatively securely as a Safaitic carving. Style and content were evaluated based on the other Jebel Qurma rock art figures. Patina - also known as rock varnish - was evaluated based on what is known about the patination process of basalt. When basalt is carved, the removed surface is grey-white. Over time, patina, or varnish, forms over the rock carving and changes in colour progressively from grey-white to orange-red before, eventually, gaining the same patina colour as the surrounding rock (Betts 1987: 219). As early as 1929, this phenomenon was noticed by scholars. René Dussaud describes the process and its implications for dating the Safaitic inscriptions:

> *'Un élément important à considérer est la teinte brune prise par la surface du basalte des pierres retaillées pour entrer dans les constructions. Il faudrait s'assurer si elle correspond ou non à la teinte qui caractérise*

[3] For a study of the *wusūm* in this region see Berghuijs 2017.
[4] QUR-529.23.1

Figure 3.4. The abstract figure on the lower right side of this boulder might be prehistoric in date. It is much more weathered than the two Safaitic inscriptions on this panel, one of which slighly superimposes the abstract figure. Scale bar = 50 cm (QUR-728.2).

Figure 3.5. Here the author signs the image of five ostriches and a carnivoran with only a name and no direct reference to what is depicted: 'By Zmrt son of Nybt' (QUR-148.45).

As Dussaud observes, the younger Arabic carvings are lighter and usually grey-orange in colour, a fact that can be seen in the *wusūm* engravings as well (Figure 3.3). In contrast, the Safaitic engravings are more patinated and have thereby obtained their striking orange-red colour. The eventual full patinaion of the carving to the dark grey colour of the basalt surface could be observed in some carvings in the Jebel Qurma region; these carvings were only visible in relief (Figure 3.6). The patination process progressed much faster for these carvings. In contrast, carvings that had been buried under sand or exposed to wind-blown sand had had their patina worn away and obtained a 'washed out' tint (Figure 3.7). The rate of weathering and formation of patina is thus variable, being subject to environmental factors such as wind direction, climate, topography, and production aspects, such as groove depth and technique (Bednarik 2002; Betts 2001). For this reason, the colour of the patina is only a general rule of thumb and it cannot be used to date the engravings or to establish a typo-chronology within the Safaitic carvings. However, it can aid in identifying Safaitic carvings within panels and adjacent panels. Petroglyphs that have the same patina as Safaitic inscriptions on the same or an adjacent panel (thus exposed to the same weather conditions) *and* that were similar in style and content to known Safaitic rock art can with confidence be identified as a Safaitic carving (Figure 3.8).

> *les inscriptions safaïtiques. Nous avons jadis observé que les textes gravés au moyen âge (textes arabes datés) sur le basalte de ces régions conservent encore une teinte grise. Dans un millénaire, sous l'action atmosphérique, cette teinte sera pas sée au rouge, tandis que les inscriptions safaïtiques, aujourd'hui rouges, commenceront à se bien moins détacher de la teinte noire environnante, parfois d'un noir brillant comme celui des vases attiques, que prend le basalte éclaté depuis des millénaires' (Dussaud 1929: 148).*

Based on the two conditions outlined here, a total of 4510 petroglyphs could be identified as Safaitic. An additional two engravings are discussed for which the association with the Safaitic inscriptions is not clear. They depict the desert kite structures described in Chapter 2 and are two of many kite carvings found in the eastern *badia*. It is much debated whether the desert kite depictions are Safaitic in date or much older and therefore these two carvings also warrant discussion in this study.

Figure 3.6. This engraving of three adult equids and four young equids - perhaps representing a herd of wild asses - is fully patinated and therefore has the same colour as the basalt surface. The two Safaitic inscriptions are too weathered to be legible (QUR-839.39).

Figure 3.7. A rock art panel depicting two oryx, a carnivoran, an anthropomorph with dots, and an inscription (QUR-12.58). The area where the rock has been buried in the sand is visible due to the washed-out colour.

Figure 3.8. There is no Safaitic inscription associated with this image. However, the rock art has the same patina as known Safaitic carvings on adjacent panels and the style and content of the carving is typical of known Safaitic rock art (QUR-137.73).

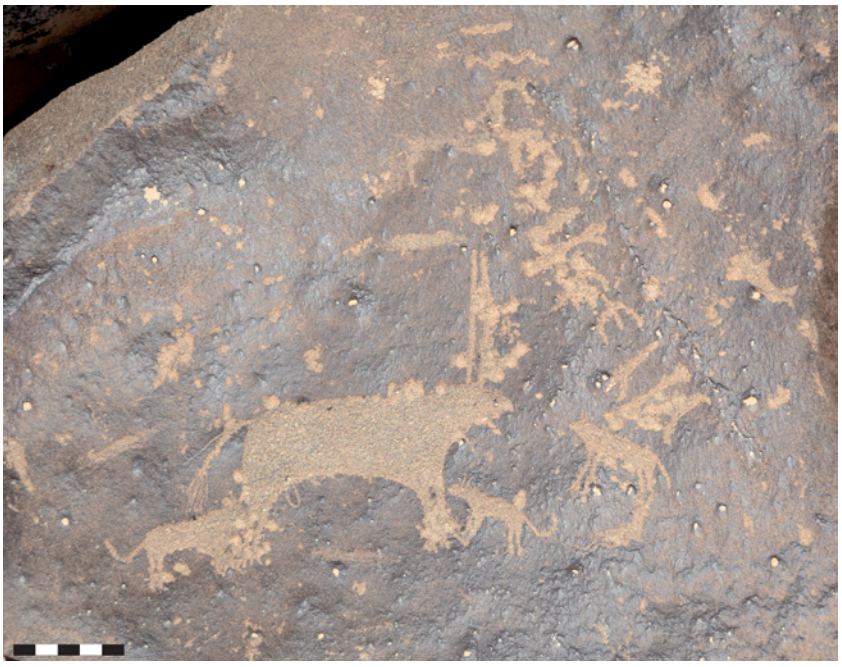


Figure 3.9. Three canids surround a male oryx. The figures are depicted 'interacting' with one another, representing a scene in which the canids are hunting, attacking, the oryx. The incription refers to 'the bull' (QUR-370.103).

This study does not endeavour to develop a typo-chronology within the Safaitic rock art. For this, it would be necessary to compare the rock art of Jebel Qurma with that of other regions, in content and style, and compare it with inscriptions that include dates. This task is complicated by the fact that superimpositions are very rare in the rock art (see Chapter 5) and can therefore not help in making a relative chronology within the figures. More data from other regions is therefore first needed and subsequently a comparative study with the Jebel Qurma material needs to be conducted. Acknowledging that there may be temporal differences within the rock art, this study treats the 4512 petroglyphs as one corpus, which is made possible by the relatively small geographic region and the relatively closed timespan of the production of Safaitic carvings.

3.3.2. Processing the petroglyphs

Each petroglyph was recorded individually as a *figure*. The figure was identified and its various features were examined and described. Subsequently, for each figure, I determined whether it had an association with another figure. I recognise two types of figure associations: 1) a scenic composition (*scene*) and 2) a non-scenic composition (*group*). Both are different types of *rock art compositions*. I then evaluated whether the figure or rock art composition is associated with a Safaitic inscription (*combined carving*). An encompassing association was used for the study of the spatial distribution: *composite carving*.

A scene is defined here as a composition that 'reflects an action, usually with a defined theme, that can be described even if the meaning and theme are unknown' (May and Domingo Sanz 2010: 37). In this study, scenes are therefore recognised as two or more figures interacting with one another and reflecting an action, for example, a hunting scene (Figure 3.9).

When two or more figures have been carved as part of the same composition but do not interact, they have been categorised as a *group*. For example, four ostrich figures carved together is a group, as is a dromedary camel associated with a set of dots (Figure 3.10). Figures, scenes, and groups are all types of *rock art compositions*.

In many cases, a rock art composition is associated with an inscription. Evaluating whether the image

Figure 3.10. A rock art composition consisting of a male dromedary camel figure and an 'anthropomorph with dots' figure. Together they form a group. The two figures are associated with the Safaitic inscription (which refers to 'the camel'), together forming a combined carving (QUR-307.5).

is associated with an inscription was done jointly by Chiara Della Puppa, who researched the inscriptions, and me. While the rock art compositions are the focus of this book, they cannot be seen as a separate creation from the inscription stating the carver's name and sometimes a reference to the image or an activity. The carver made a composition consisting of rock art and an associated inscription. For example, the hunting scene shown in Figure 3.9 belong together with the inscription that states the carver's name and refers to 'the bull'. For this reason, to accurately analyse the amount of rock art at a site or on a boulder and their spatial distribution, I counted by carving composition. A single camel can be a composition, a camel with associated inscription is a composition, and so is a scene or a group of ostriches with an inscription, and so forth. For this, I use the term *composite carving*.

3.4. Content

The analysis of the content of the rock art is based on the identification and examination of the figure, its features, and the scene if it is depicted in one. I recognise that the breaking down of rock art figures into categories and sub-categories does not do justice to the complexity of the material and that there are always limitations inherent to the choices made in which categories to use and in which to place the various figures. However, it is a necessity to make the dataset analytically viable on several levels and I hope that, in being as transparent as possible, future researchers can use and improve upon the identifications I have made and the analyses I have carried out.

I recognise three categories of types of figures: *anthropomorph*, *abstract*, and *zoomorph*. When the type of figure could not be recognised it is categorised as 'unknown'. The unknown figures are not included in the further analyses in Chapters 5 and 6. Abstract figures include geometric designs, such as circles and lines, but also figures that are abstract in form and not readily recognisable. There are three motifs that fall in between the anthropomorph and zoomorph type: hybrids, equids with riders, and camels with riders. There are two hybrid figures that I have classified under anthropomorphs because they resemble more human form than animal. I have categorised the equids and camels with riders under zoomorphic motifs because the rider tends to be depicted small and lacks details; the visual emphasis lies on the animal. However, I discuss the weapons of the riders in the section on anthropomorphs (Chapter 4.3.3).

Secondly, I identified the type of motif within these categories, for example, 'woman', 'dromedary camel', or 'set of dots'. When the motif could not be identified only the type of figure is registered, for example, an unknown anthropomorph. In some cases, this is due to the simplicity of the image, but in many cases, it is due to weathering or effacement.

Classifying the various zoomorphic motifs posed the greatest challenge. Identifying animals in rock art is a notorious issue for rock art researchers (cf. Davidson 2017). As researchers, we are limited by our knowledge of the animals extant in the area in the period in which the rock art was produced and by our own modern preconceptions about the appearance and representation of animals. Linking zoomorphic motifs to known animal species can, therefore, be difficult. However, identifying animals in the Safaitic rock art is aided to a great extent by the inscriptions; for example, an image of a felid associated with the inscription 'By [name] is the lion' can unambiguously be identified as a lion. When motifs are depicted in a fairly consistent manner, such as is the case with the lion, it is then also possible to identify other lions even when there is no inscription. This is not possible to the same extent for all zoomorphic motifs. For example, there is still a lot of ambiguity surrounding the interpretation of the words used in Safaitic to denote the different types of equids (see Chapter 4.4.4).

However, overall, the inscriptions provide a valuable method for identifying animals and how they are represented in the rock art. Additionally, the distinctive features of certain animals play an important role in the identification process; for example, the scimitar-shaped horns of the male ibex make it easily recognisable (see Chapter 4.4.3). Lastly, it is important to take into account what we know of the fauna of the region in Classical Antiquity, as many of the animals depicted in the rock art are now extinct in the area. To reconstruct the past fauna, this study uses several sources to supplement the sparse zooarchaeological record. The first source is ecological information on the different species indigenous to this region as studied by, among others, the International Union for Conservation of Nature (IUCN)[5] and biologists. The second source is historical texts, which mostly pertains to equids in the Ancient Near East. Third, I have consulted travel journals and books written by travellers who visited the region in the 19th and 20th centuries, when many of the desert animals were still present in the region. Lastly, I have looked at the so-called pre-Islamic poetry, which is oral poetry composed by poets in the Arabian Peninsula in the pre-Islamic era from the sixth century AD on and written down later in the eighth century. They include the classic odes, *qasidah,* in which the poet describes his journey through the desert on his mount, the camel or horse, and the hardships he endures and things he sees, and the *tardiyyah*, hunting poems in which the author describes his hunting exploits (G. Smith 1990; S. Stetkevych 1993). There are notable thematic similarities between the pre-Islamic poems and the Ancient North Arabian inscriptions and rock art. However, this study does not use the poems as a source for interpreting the Safaitic rock art because, among other reasons, the poems were written down many centuries after the production of the carvings. Instead I use the poems, critically, as one of several historical sources that can aid in reconstructing the wildlife of the region and, to an extent, the possible interactions desert peoples may have had with the domestic and wild animals in the desert. Based on these different sources, it is possible to make more accurate identifications of specific species of animals and also to identify what is *not* depicted in the rock art.

In all cases, this study lumps rather than splits data as much as possible to provide careful identifications. There are a number of figures that cannot be identified beyond group or family level with certainty. For example, the difference between an ibex and gazelle is often difficult to discern because gazelles and female ibex both have short, backwards-curving horns and have no other species-specific distinguishing features. Rather than provide a tentative identification of either ibex or gazelle, I identify the motif as a 'bovid' and express the possibility of it being an ibex or gazelle under the sub-motif. These are expressed in tables and charts with the suffix *unid.* (for unidentified; e.g. bovid *unid.* or ungulate *unid.*). As is the case for the other 'unknowns', an identification is not always made impossible by lack of detail or distinguishing features, but often also by weathering, effacing, or superimposition.

3.5. Traces of production and consumption

3.5.1. Production

In the Jebel Qurma rock art, two main types of carving technique can be distinguished: *percussion* and *incision*. Percussion technique is the process of carving with the use of a hammerstone and can be divided into two sub-types: *pounding* and *pecking*. Pounding is the process of direct percussion, carving directly with a hammerstone onto the surface rock, and pecking is the process of indirect percussion, using a hammerstone and a chisel to carve (IFRAO 2018). Pounding can be recognised by the broader, often shallower marks it produces. On basalt, pounding tends to result in irregular lines and a more uneven appearance as it is not possible to align each blow precisely with the previous one

Figure 3.11. A hunting scene featuring two carnivorans (most likely lions) hunting three ostriches. The scenes has been made by pounding technique. The irregular lines and shallow marks that pounding often results in are clearly visible here (QUR-439.6).

[5] Detailed information on extinct and extant species is available in their Red List of Threatened Species (www.iucnredlist.org)

Figure 3.12. This wild ass has been pecked, recognisable by the neat, regular lines along the outside and the even in-fill of the figure. The archer hunting it has been incised (QUR-839.35)

Figure 3.13. An incised hunting scene of a rider on an equid hunting an oryx. Different groove depths and thicknesses have been used. The associated inscription has also been incised. The inscription refers to 'tn or 'female ass' and probably indicates that the equid is a mule or hinny (see Chapter 4.4.4) (QUR-551.41).

(Keyser and Rabiega 1999) (Figure 3.11). Pecking tends to produce more regular, neater lines because the carver is able to control and align the lines more carefully (Figure 3.12) (Keyser and Rabiega 1999). The overall figure has a more even appearance and it also often results in deeper grooves. Rock art experiments replicating the two techniques on different types of rock surfaces, including basalt, have shown that this distinction is a valid one (Da Rosa *et al.* 2014; Keyser and Rabiega 1999).

Based on these characteristics, it is possible to identify the type of percussion technique used to carve a figure. However, the difference between the two techniques is not always easy to deduce from the end result. A perceived irregular and inaccurate line cannot always be attributed to pounding because other variables, such as the type of rock, the direction of impact, and tools used, can also account for the regularity of the groove (cf. Bednarik 1998: 24). Indeed, in the Black Desert, the surface of the basalt rock varies from smooth to coarse, from porous to dense, and has a significant effect on the appearance of the carving. Therefore, the distinction between pounded and pecked lines has only been made when a carving can clearly be identified as being either pounded or pecked. If not, the technique is categorised as percussion unidentifiable (abbreviated to *unid.*).

The incision technique results in a very different appearance because it entails the use of a sharp, pointed tool directly on the rock. It results in narrow grooves that can range from

shallow to deep (Figure 3.13). Carvings with this appearance have been identified as being incised. In addition to the use of one of these three techniques, some figures have been carved using a combination of two or more techniques.

3.5.2. Consumption

Recognising traces of consumption can be difficult because it is not always possible to distinguish between what the original carver has done and what a later person may have changed, added, etc. Unless the actions occurred much later, for example in medieval or modern times, the patina will be very similar. Interestingly, a number of carvings have been interacted with in much later times (Figure 3.14). This study focuses on those interactions that can be assumed, based on patina and composition, to date to the period of the Safaitic carvings.

Some of these interactions might have been those of the producer, rather than the consumer; even the effacement of a figure might be the work of the original carver. However, there are two reasons to assume that there were interactions going on in the rock art beyond the original actions and intentions of the producer. The first is the large number of different names that occur in the Safaitic corpus (cf. Della Puppa forthcoming). The names are found scattered across the Jebel Qurma region, but also across sites and even boulders. For example, on large panels an accumulation of images with associated inscribed names can often be found, suggesting a large number of people interacted with the boulder in a variety of ways (Figure 3.15).

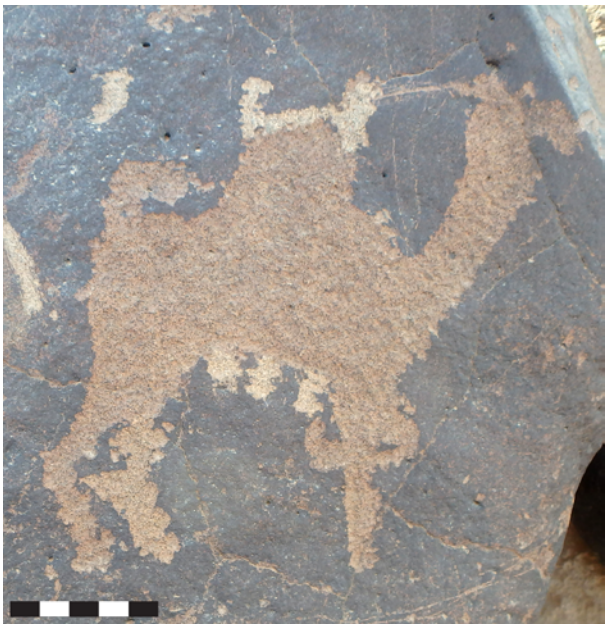


Figure 3.14. This female dromedary camel figure is a good example of recent interaction with Safaitic rock art. It has been modified twice since production. The front-most hind leg has a slightly lighter patina; it was either added or the original was pounded over. Subsequently, a saddle and tassles were added quite recently, judging from the very light patina (QUR-176.49).

The second reason is that there is evidence from the Safaitic inscriptions that the carvers had knowledge that other people would see and possibly interact with their engravings. There is a large number of inscriptions in the Safaitic corpora that contain curses against people effacing their inscriptions. For example, 'curse whoever erases the carving'[6], 'may whoever erases the writing be thrown out of the grave'[7], or 'O S²ʿhqm blind whoever scratches out [the drawing of] the horseman'[8] are just a few of the types of curses that occur. In the Jebel Qurma region, there are several inscriptions that include a curse against anyone who might efface the carving (Della Puppa forthcoming). Interactions with other people's carvings were not all negative. There are also inscriptions wishing good to come to those who read the inscription, for example, 'O Lt, may he who would read this writing aloud have security and forbearance'.[9] Additionally, there are carvings where the author himself expresses finding and reading an inscription and reacting to it, for example, 'By ʾs¹lm son of S¹ʿd...and he found the inscription of his grandfather and so grieved in pain'.[10]

This evidence for the (negative and positive) interactions with other people's carvings and the evidence for production by many different people, based on the variety in names, indicate that there was consumption of the carvings. The traces of this should be visible in the rock art. I recognise four types of consumption: effacement, superimposition, modification, and accumulation. The act of neglecting or ignoring carvings can also reveal insightful information on consumption (cf. Dietler 2010: 226), but leaves little traces in the material record. However, it may be possible to detect whether specific types of carvings are left alone, for example, from acts of effacement.

Effacing is recognised as the act of 'erasing' a carving or part of a carving. In the Black Desert rock art, carvings that are effaced are hammered, or, more rarely, incised, over, causing the carving to become only partly visible or not visible at all anymore (Figure 3.16). This study examines the occurrence of effacement among the rock art images, whether specific parts of figures are effaced, whether specific figures are consistently left alone, and how its occurrence compares to the effacement of the inscriptions.

[6] KRS 1116
[7] KRS 1379
[8] KRS 331
[9] LP 685
[10] C 2237

Figure 3.15. A large panel at QUR-147 which has become a patchwork of accumulated textual and pictoral engravings. Scale bar = 20 cm.

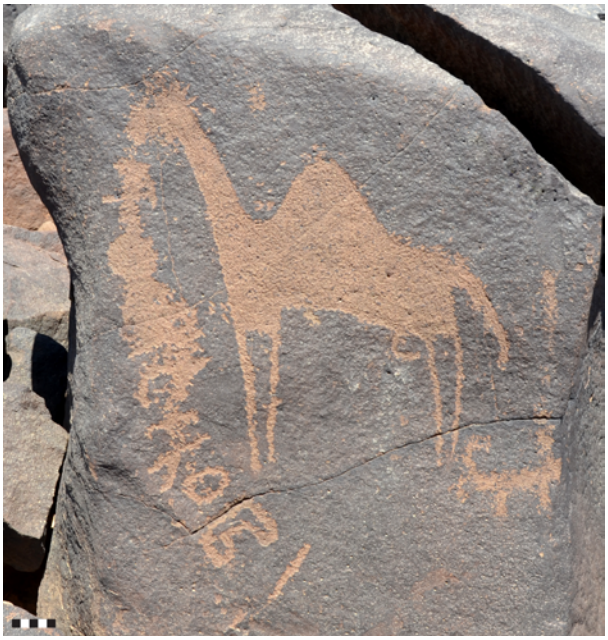


Figure 3.16. The head of the dromedary camel and parts of the inscription have been effaced. There are also various pounded marks around the body of the camel, which might be an act of effacement as well (QUR-2.428).

Superimposition is identified as the placement of a carving on top of another (Figure 3.17). The act of modification is arguably the most difficult to attribute to another person with certainty; any changes made to the figure might have been carried out by the producer. However, I examine the occurrence of clear modifications to figures that appear to not be part of the original *chaîne opératoire*. It may be possible to subsequently evaluate whether the alterations were made by another person or not.

The final recognisable type of act of consumption is the act of accumulation, which is the act of producing an image on a panel or at a site containing existing carvings, thereby adding to the accumulation of carvings over time. It is a topic that can be researched in-depth and through detailed analyses, both theoretically and methodologically (see e.g. Sapwell and Janik 2015). I include a small investigation of this phenomenon based on the accumulation at the micro-landscape level and the macro-landscape level. On the micro-landscape level, this entails the accumulation of rock art compositions per boulder. On the macro-landscape level, I analyse the accumulation of groups of figures and the accumulation of composite carvings per site. In theory, the more carvings on one boulder or at a site, the higher the extent of accumulation is. The amount of composite carvings per site has subsequently been used as the basis for the analysis of the spatial distribution of the sites in the landscape.

3.6. Places of production and consumption

In Chapter 1, I discussed how the relationship between rock art and the landscape can be investigated on different levels: the micro-landscape and the macro-landscape. This study examines where the rock art was produced and consumed at these two scales of landscape. The micro-landscape is investigated as the panel surface and the relationship between the petroglyphs and this surface. This can reveal whether there is a relationship, whether choices were made in production with regard to the rock boulder, and what the effects might have been on the consumer. This entails an in-depth study of the rock art boulders and their features in the field and during the post-fieldwork processing to investigate how the rock engravings use or interact with the natural features of the surface rock.

The macro-landscape is investigated as the regional level: the relationship between rock carvings and the landscape within the Jebel Qurma region. I do this through a study of the spatial distribution of carving (rock art and inscriptions) sites, exploring their possible relationship to landscape features, such as prominent hills, slopes, or valleys. The study is carried out for the surveyed area of the Jebel Qurma region and is based on the GPS locations of the 308 sites containing

Figure 3.17. The first carving on this panel was an incised composition of four ostriches, an ungulate, and a Safaitic inscription. Then another inscription was pounded on the rock, partly superimposing the ostriches (QUR-171.109). Right: the ostriches have been traced (red).

engravings.[11] The distribution maps are based on an overlay of a 12 m resolution WorldDEM and a model of the surface slope of this area, generated by Huigens (2018) (Figure 3.18-20). The north-western area of the region is used as a case study for a more detailed study of the spatial distribution. This area was surveyed in 2015 and there are GPS coordinates available for the individual boulders containing carvings (Figure 3.19). This makes it possible to plot the distribution in more detail and examine whether there is a difference when the distribution is analysed per boulder rather than per site.

This study subsequently explores two aspects of the landscape setting of sites: the accessibility of carving sites and the visibility of and from carving sites. As outlined in Chapter 1, understanding the accessibility and visibility of carving sites can provide insights into why the rock art was produced in particular places, who could have produced and consumed the rock art, and how consumers would have interacted with the images. This can be studied using a number of formal measures, such as measurements of visibility (Bradley 1997: 82) and measurements of landscape features, such as elevation and slope (Hyder 2004: 86). To formally investigate the relationship between carving sites and accessibility and visibility, I plot the distributions of sites against a number of the landscape models generated by Huigens (2018). For an explanation of the methodology used for generating them and the archaeological context and implications, I refer the reader to his study (Huigens 2018; forthcoming).

I make use of four models: 1) a Hillslope Position Classification (HPC), which shows the relative classification of topographic features, based on slope degree elevation, and surface curvature; 2) a Cost Surface Raster, which shows the relative cost of movement, based on slope degree and surface cover; 3) a Visual Prominence Classification, which shows the visual prominence of the different areas in the landscape, based on a cumulative viewshed; and 4) a Skyline analysis, which shows features that are more visible on the horizon than others, based on the WorldDEM. I examine the distribution of rock carvings in relation to the landscape through these four models on two levels: the distribution of carvings per site and the distribution per boulder in the north-western area of the Jebel Qurma region.

Lastly, this study also investigates visibility through a number of viewshed analyses. The viewshed analyses are used to investigate the extent of visibility *from* the

[11] Although 311 sites with Safaitic carvings have been discovered, GPS coordinates are not available for three sites.

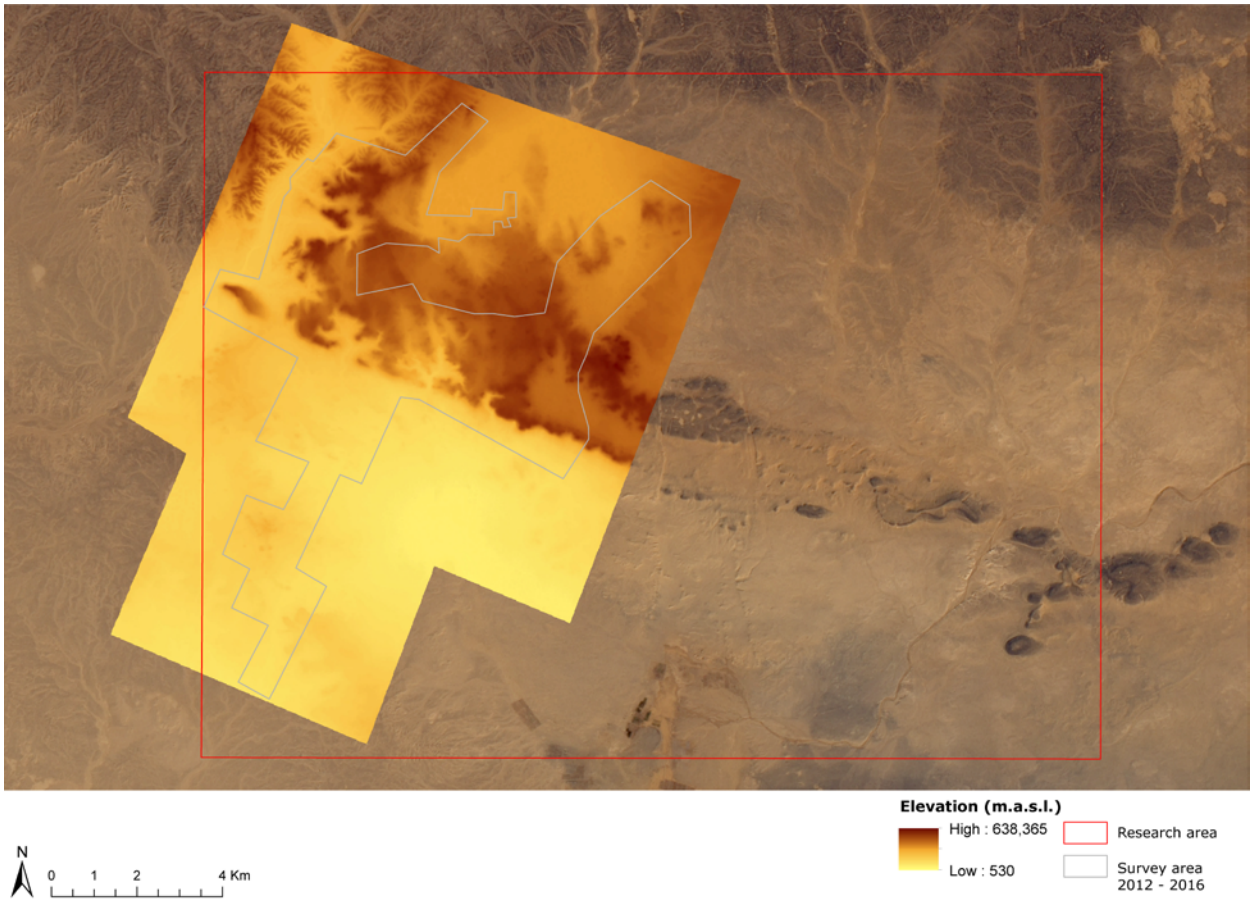


Figure 3.18. A WorldDEM map was available for the western part of Jebel Qurma. The entire research area (red outline) and the surveyed area (grey outline) are indicated. Base map: Landsat 7, true colours.

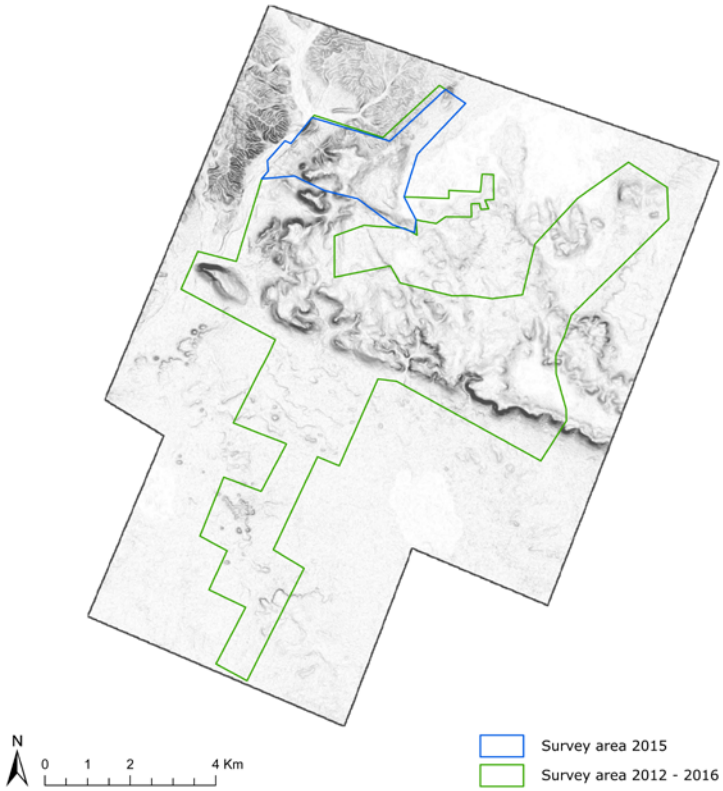


Figure 3.19. Relative degree of surface slope. Darker shades indicate steep slopes and lighter shades indicate gentler slopes. Based on WorldDEM. After Huigens 2018.

locations of carvings. A viewshed analysis is based on the WorldDEM and calculates whether cells are visible from a specific location in the landscape, the 'observer point'. These analyses are carried out from nine sites; all were selected from the north-western area from where GPS coordinates for the individual boulders are available.[12] As such it is possible to select an observer point that represents the centre of the concentration of carvings and thus generate a viewshed model that most accurately illustrates the visibility from the carving site. The vegetation in the region today, limited to shrubs, grasses, and few trees, does not affect visibility. Although the climate in antiquity might have been slightly different, the desert environment would have precluded the type of vegetation that would have limited visibility.

Although paths have been identified in the Jebel Qurma region and may have affected accessibility, I do not investigate this

[12] The selection of sites will be explained in Chapter 6.4.

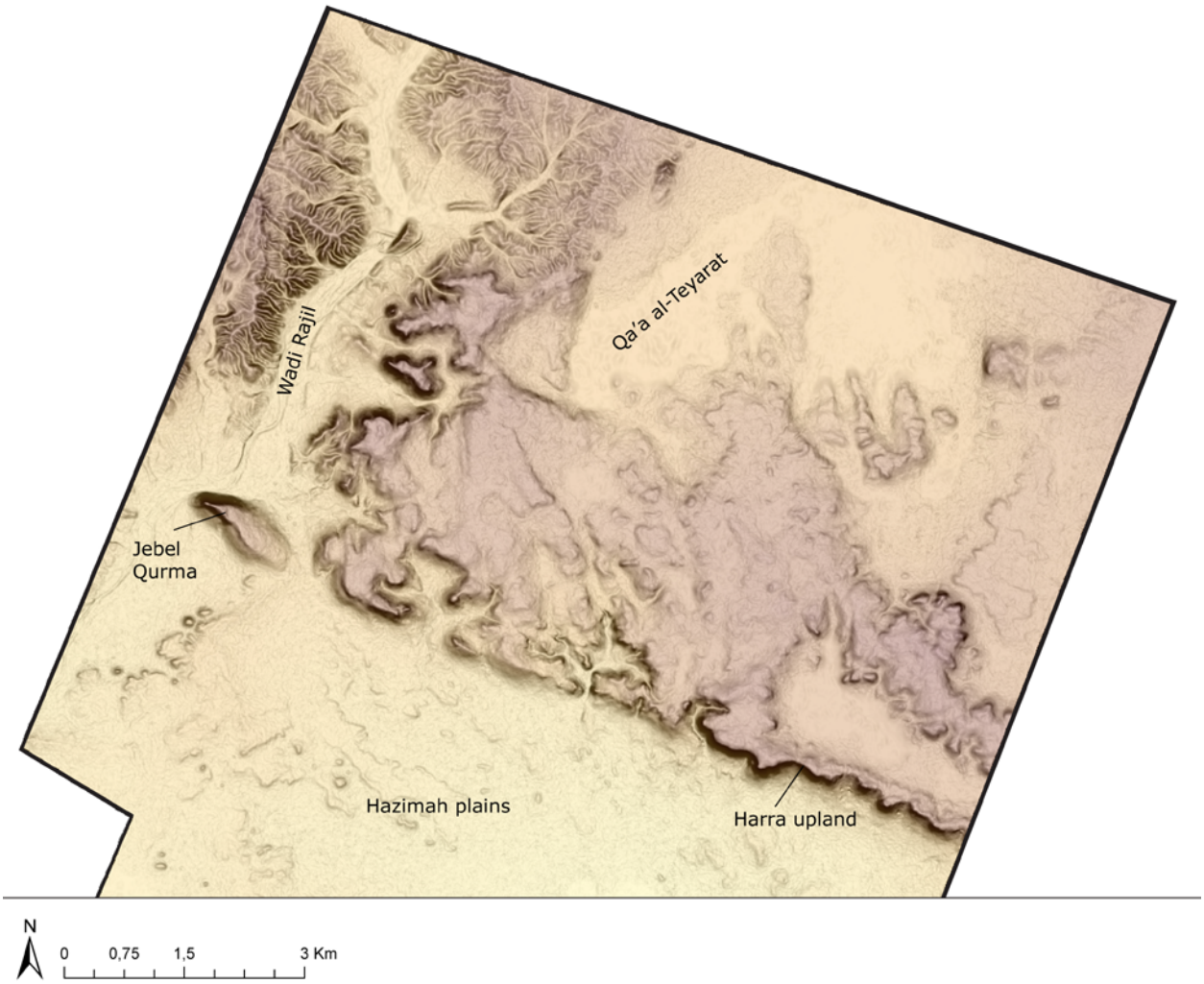


Figure 3.20. Overlay of surface slope on WorldDEM, zoomed in on the area where rock carvings occur, providing a visualisation of the elevation and the steepness of hillslopes. The purple areas indicate higher terrain and the yellow areas indicate lower terrain. The darker shade, the steeper the slope. Relevant landscape features are labelled.

relationship because it is not clear whether these paths were already present in antiquity.

3.7. Research challenges

This rock art research and the fieldwork carried out by the *Jebel Qurma Archaeological Landscape Project* are pioneering and there are a number of difficulties that are inherent to such studies. First, as mentioned earlier, without comparative studies, it is not yet feasible to establish a (typo-) chronology within Safaitic rock art. It is possible that within the Jebel Qurma corpus there are temporal differences that account for certain variations, which currently cannot be identified. However, Safaitic engravings are a fairly 'closed' cultural production as they are mostly limited to the *harra* region and, compared to many rock art traditions, span a relatively short time period. For this reason, it is possible to study the Jebel Qurma corpus as a whole. Future comparative studies will hopefully be able to shed light on the chronology of the rock art and make it possible to evaluate how representative the Jebel Qurma corpus is for Safaitic rock art. This corpus is not assumed to be a reflection of the Safaitic petroglyph tradition as a whole, but it provides a valuable case study for understanding this rock art.

It is currently also not possible to compare the Safaitic rock art from Jebel Qurma with contemporary rock art from other areas in North Arabia, such as the Hismaic rock art or Thamudic rock art, because there are no comparable datasets available for them. In this, the dataset from Jebel Qurma is unique, not only for Safaitic rock art but for Ancient Arabian rock art in general.

Concerning the method of data collection, there are a number of matters that must be considered, which pertain primarily to the study of the relationship between the rock art and the landscape. First, as explained in § 3.2, it was not possible to define sites based on fixed parameters and therefore sites can range in spatial size and number of structures,

engravings, etc. It is necessary to keep this in mind when considering the comparisons between carving sites. Exact quantitative comparisons are not possible, but it is possible to detect overall patterns in the number of carvings. Furthermore, due to the intensive survey method, the resolution of the data is very high and therefore the distribution of sites and carvings is an accurate one.

To study the distribution of carvings in the landscape, the GPS coordinates of each site have been used because GPS coordinates are not available for all individual carved boulders surveyed from 2012 to 2014. The locations in the landscape therefore reflect the centre of the site as a whole (including carvings and structures) and not necessarily the centre of the concentration of carvings. GPS coordinates for the individual rock art boulders are available for the north-western area, surveyed in 2015. Therefore, this area is used as a case study to more precisely investigate the number of engravings and their distribution in this area. This also makes it possible to assess the results from the site study.

Lastly, a small part of the western area of the Jebel Qurma region, the area roughly to the south of the Qa'a al-Teyarat, was not surveyed (see Figure 2.2). Remote sensing of this area showed no visible large sites and surveys of the area around it yielded only a few isolated sites and artefact scatters. For this reason, it was not surveyed due to time constraints. It is therefore not possible to evaluate the distribution of carvings between the north-western area and the north-eastern area of the surveyed region. However, the homogeneity of this area and the lack of substantial sites around it mean it is possible to make a tentative hypothesis about the spread of carving sites here (see Chapter 6).

Chapter 4

Desert images

4.1. Introduction

The images depicted in rock art and the narratives they convey can provide significant insights into the role of the rock art and the worldview of the people who created it. Subsequently, it is also possible to explore what the role of the content of the images was in the production and consumption of the rock art. A thorough investigation of the representations themselves is especially valuable for rock art that has seldom been studied and for societies for which there are few sources of information, such as the desert societies of northern Arabia. The aim of this chapter is to provide a detailed description of the content of the Jebel Qurma corpus. It provides the foundation for the further investigation of the material and its creators. It focuses on two central questions: which figures are depicted in the rock art and how do they interact with one another in narrative scenes? Additionally, with this chapter, this book endeavours to provide a foundation for the future research of Safaitic rock art by providing clear criteria for studying the rock art.

This chapter first provides a brief description of the general results, including the types of figures and motifs that occur in the corpus and the state of preservation of the rock art. The following three sections then describe the motifs per type of figure: anthropomorphs, zoomorphs, and abstract. Subsequently, I discuss the representation of gender and sex in the figures, with a more detailed look at the dromedary camel figures. Lastly, this chapter examines and describes the types of scenes visible in the rock art.

4.2. The figures

4.2.1. Figures

In total, 4512 figures, situated on 2264 boulders and located at 241 different sites, were identified and recorded in the Jebel Qurma survey area between 2012 and 2016. Of the 4512 individual petroglyphs, approximately half are depicted individually, while a third is depicted in a group and just under 17% are depicted in a scene (Table 4.1).

Zoomorphic figures are by far the most common in the Jebel Qurma rock art, making up more than 73% of all figures (Table 4.2). The other types of figures occur in much smaller numbers. The anthropomorphic figures make up a very small percentage of the corpus.

Table 4.1. The number of figures depicted on their own, in a scene, and in a group.

Association	N of figures	% of total
On its own	2286	50.7%
In a scene	754	16.7%
In a group	1472	32.6%
Total	**4512**	**100.0%**

Table 4.2. The number and percentage of figures per type.

Type	N of figures	% of all figures
Zoomorph	3310	73.4%
Abstract	625	13.9%
Anthropomorph	322	7.1%
Unknown	255	5.7%
Total	**4512**	**100.0%**

Within the three types of figures, 36 different motifs could be identified and there are a number of figures that could not be identified to a specific motif (Table 4.3). In the following sections, the motifs will be described.

4.2.2. State of preservation

In total 1038 figures (23% of the corpus) is poorly preserved (Table 4.4). Four factors affect the preservation of the rock art in the Jebel Qurma region. Wind-blown sand has accumulated at a number of sites, partially burying or completely burying 52 figures, causing the rock art to obtain a greyish tint (Figure 3.7). Other figures are weathered, rendering the rock art poorly visible and the inscriptions illegible. A wide range of factors may be the cause of this, such as wind, rain, fluctuating temperatures, wind-blown sand, etc. It is not possible to identify which factor is responsible, so all weathered figures have been grouped together in Table 4.1. A relatively high percentage (19%) of the corpus is weathered. A small percentage of the corpus has been damaged. The most likely cause of this is looting. The looting of cairns is widespread in the *harra* and has only increased in recent years (Akkermans and Brüning 2017: 135). It leads to destruction at a site because stones from the cairn are removed and thrown and sometimes even dynamite is used. In this process, carved panels are thrown and suffer damage or are hit by other rocks. This damage is distinguishable from effacement that occurred in antiquity (see Chapter 3.5.2

Table 4.3. The number and percentage of figures per motif.

Motif	Number	% of type	% of all figures
Anthropomorph			
Anthropomorph with object(s)	162	50.3%	3.6%
Anthropomorph without object(s)	119	37.0%	2.6%
Anthropomorph with dots	26	8.1%	0.6%
Anthropomorph with lines	1	0.3%	0.02%
Hybrid	2	0.6%	0.04%
Woman	12	3.7%	0.3%
Total	*322*	*100.0%*	*7.1%*
Abstract			
Circles	21	3.4%	0.5%
Kite	2	0.3%	0.0%
Line and set of dots	33	5.3%	0.7%
Rectangles	56	9.0%	1.2%
Rayed circle	46	7.4%	1.0%
Sets of dots	194	31.0%	4.3%
Set of lines	184	29.4%	4.1%
Star shape	7	1.1%	0.2%
Wheel	4	0.6%	0.1%
Abstract *unid.*	78	12.5%	1.7%
Total abstract	*625*	*100.0%*	*13.9%*
Zoomorph			
Dromedary camel	1285	38.8%	28.5%
Young dromedary camel	153	4.6%	3.4%
Dromedary camel with rider	39	1.2%	0.9%
Young dromedary camel with rider	9	0.3%	0.2%
Bactrian camel	2	0.1%	0.04%
Camel *unid.*	1	0.03%	0.02%
Total camels	*1489*	*45.0%*	*33.0%*
Gazelle	6	0.2%	0.1%
Ibex	104	3.1%	2.3%
Ibex or gazelle	87	2.6%	1.9%
Oryx	96	2.9%	2.1%
Oryx or gazelle	8	0.2%	0.2%
Bovid *unid.*	97	2.9%	2.1%
Young bovid *unid.*	3	0.1%	0.1%
Total bovids	*401*	*12.1%*	*8.9%*
Equid with rider	183	5.5%	4.1%
Horse	3	0.1%	0.1%
Young horse	2	0.1%	0.04%
Wild ass	13	0.4%	0.3%
Ass *unid.*	31	0.9%	0.7%
Young ass *unid.*	1	0.03%	0.02%
Equid *unid.*	134	4.0%	3.0%
Young equid *unid.*	6	0.2%	0.1%
Total equids	*373*	*11.3%*	*8.3%*
Dog	20	0.6%	0.4%
Canid *unid.*	41	1.2%	0.9%
Lion	43	1.3%	1.0%
Felid *unid.*	7	0.2%	0.2%
Carnivoran *unid.*	49	1.5%	1.1%
Total carnivorans	*160*	*4.8%*	*3.5%*
Lizard	1	0.03%	0.02%
Ostrich	342	10.3%	7.6%
Scorpion	1	0.03%	0.02%
Hybrid	2	0.1%	0.04%
Quadruped *unid.*	290	8.8%	6.4%
Ungulate *unid.*	173	5.2%	3.8%
Zoomorph *unid.*	78	2.4%	1.7%
Total zoomorphs	*3310*	*100.0%*	*73.4%*
Unknown			
Unknown	255	100.0%	5.7%
Total unknown	*255*	*100.0%*	*5.7%*
Total	**4512**		**100.0%**

Table 4.4. The state of preservation of the figures.

Preservation	N of figures	% of total
Good	3474	77.0%
Buried	52	1.2%
Damaged	66	1.5%
Lichen	50	1.1%
Weathered	855	18.9%
Weathered and damaged	15	0.3%
Total poorly preserved	***1038***	***23.0%***
Total	**4512**	**100.0%**

Figure 4.1. A panel covered in lichen, obscuring most of the dromedary camel figure (QUR-965.60).

& Chapter 5.4). Sixty-six figures have been damaged and a further 15 are damaged and also weathered. A further 50 rock art figures have been covered by lichen growth (Figure 4.1).

The fact that almost a quarter of the Jebel Qurma figures are currently in a state of poor preservation is a cause for concern. This is likely to only increase in upcoming years. For this reason, the documentation and study of the Safaitic carvings is an important method for the conservation of this heritage.

4.3. Anthropomorphs

4.3.1. Introduction

In total, 322 anthropomorphic figures are identifiable in the Jebel Qurma rock art, making up only 7% of all figures, a very low number compared to the number of zoomorphic figures. As can be seen in Table 4.3, few specific motifs are recognised within the type anthropomorph. This is because the anthropomorphic figures are usually not depicted in detail. Gender is rarely indicated and few other features are depicted that could indicate what type of person is represented. There are two exceptions to this. The first is the 'woman' motif and the second is when anthropomorphs are holding objects.

4.3.2. Women

There are 12 figures in the Jebel Qurma corpus that appear to represent women. The best, most detailed example is the figure found at site QUR-449 (Figure 4.2). This figure has wide, curved hips, a slim waist, and long hair, and the breasts and genitals are indicated through gaps in the pecking. The other women figures are more stylised versions of this, all of which share the defining characteristic of wide, curved hips and a slim waist. All of them have their arms up in the air as well (Figure 4.3). Compared to the other anthropomorphic figures, several of the women figures are depicted in a lot of detail and all of them are carved in large dimensions (see Chapter 5).

The woman figure is one of the few motifs that have been discussed in detail in epigraphic studies of the Safaitic inscriptions. Various theories have been proposed regarding their meaning, ranging from them representing goddesses to cheerleaders to dancers or musicians (for an overview see Macdonald 2012). Macdonald (2012: 289) has convincingly argued that it is unlikely that these figures represent deities. Instead, it is possible that some were what Macdonald (2012: 283) has termed a 'cheerleader', a woman present to encourage or cheer on the men in battle. This role may have been associated with a slave status. Macdonald (2012, 280) has argued that some of these figures may represent singing or dancing girls, a prized class of slave in pre-Islamic Arabia, and various woman figures have been found that are referred to as *glmt*, 'slave girl'. The woman shown in figure 4.2 is depicted in a conflict scene and the associated inscription refers to her as a musician.[1] The translation of the rest of the inscription is ambiguous so it is unclear what the context is. However, the rock art composition suggests that this is a battle or raid (see § 4.7.3); several archers are fighting each other and there are two riders on equids with lances. This female figure may therefore represent the cheerleader figure proposed by Macdonald or she could also be the object of the raid.

One of the other Jebel Qurma figures is associated with an inscription stating 'By...is (the) slave girl' (Figure 4.3c).[2] It is possible that she fulfilled a similar role to the cheerleaders or that she is meant to represent a different class of slave girl. Two of the other figures, carved on the same panel, are associated with an inscription that refers to 'the two women' (Figure 4.3b).[3] The significance of these figures remains enigmatic, but their contrast in style to other anthropomorphs makes it apparent that these motifs played a special role in the rock art.

[1] QUR-449.2.1
[2] QUR7.111.1
[3] QUR-7.80.1

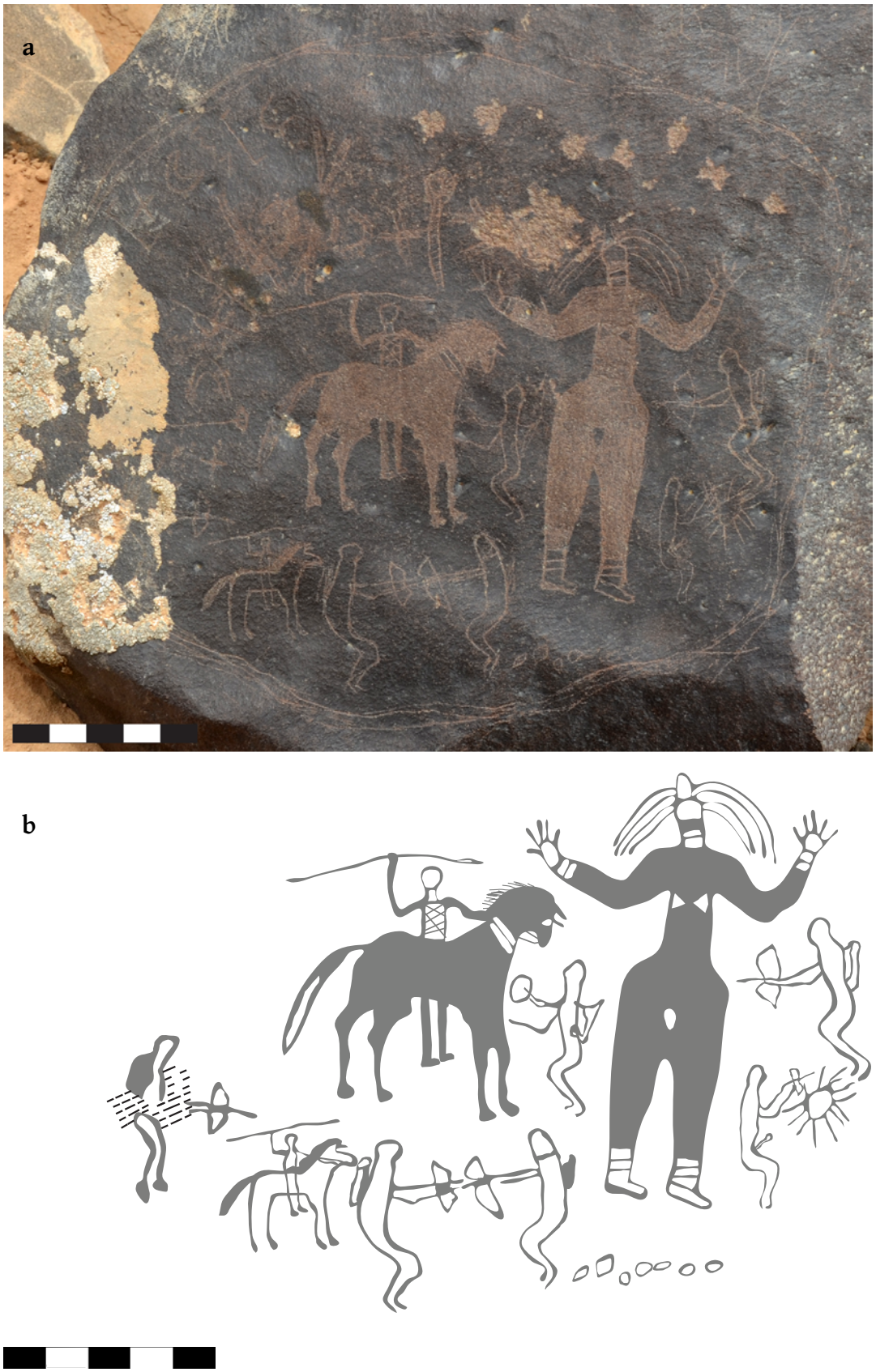
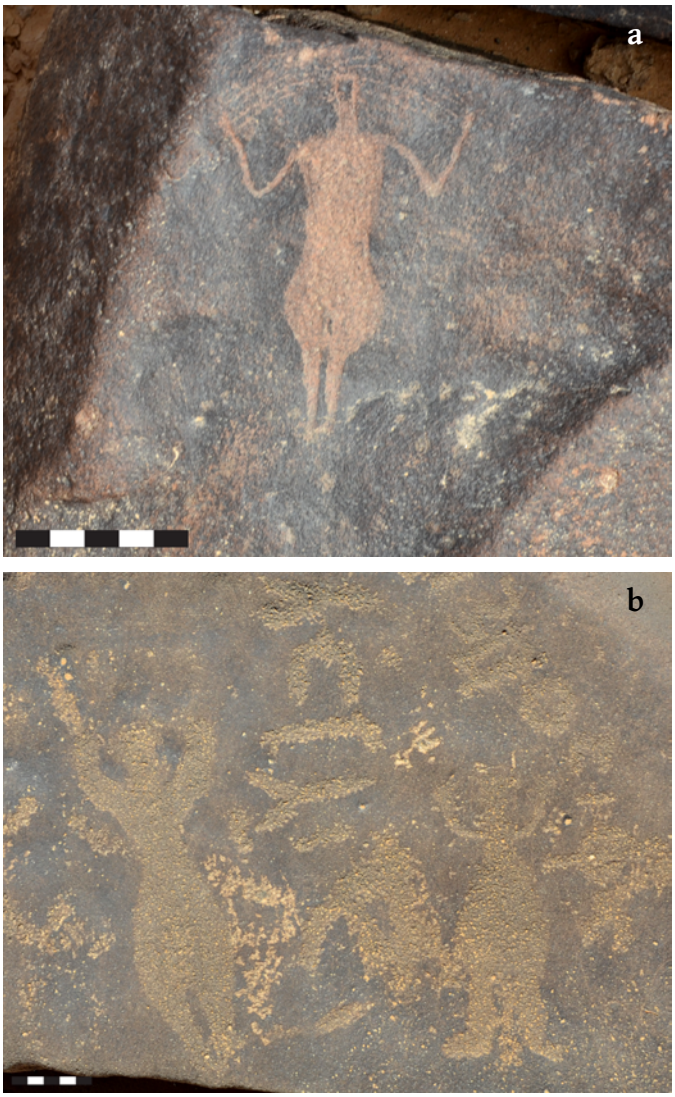


Figure 4.2. a) A raiding scene featuring an elaborately carved woman figure who dominates the composition. In the centre of the scene there is also a rider on horseback, carved with similar patterns as the woman. The scene also features several anthropomorphs on foot and another horseback rider attacking each other. The inscription refers to the woman figure as 'the musician' (QUR-449.2). b) Tracing of the scene (the inscription is excluded). The dashed line represents elements that are not visible due to weathering.



4.3.3. Anthropomorphs

The anthropomorphs are generally depicted in the same, simple manner: a small stick figure-like appearance, sometimes with the body filled in, with no detail of the head, face, or body, and rarely an indication of the gender (Figure 4.4). A few anthropomorphs are elaborated with patterns on their body, possibly indicating clothes or armour (see Chapter 5). Approximately half of the anthropomorphs are depicted holding an object. Although these anthropomorphs are not depicted in any more detail than those without an object, the object themselves give some clues as to what the figure is meant to represent. The depicted weapons were examined and identified by K. Akkermans (2017; Brusgaard and Akkermans in press). They depict a variety of combinations of objects, mostly weapons (Table 4.5 & Figure 4.5).

In general, the objects are very small and lack detail, making them difficult to identify. However, a number of different types of weapons could be recognised. Bows and arrows are the most recognisable weapon and these are also the most common of the objects. Of the 162 anthropomorphs on foot holding objects, 86 are depicted with a bow, always with an arrow drawn (Figure 4.6a). A further 12 figures have a bow and another object; on eight occasions a quiver is depicted on the back of the archer. Bows are almost never depicted in the hands of a rider; there is only one depiction of a rider with a bow. Bows and arrows are always portrayed being used against an animal or another

Figure 4.3. Examples of woman figures found in the Jebel Qurma region, all with wide hips, a slim waist, and their hands in the air. a) This woman figure has a similar hairstyle to the woman in the raiding scene at QUR-449. There is no associated inscription (QUR-529.16). b) Two woman figures associated with an inscription that states '{By} Hs¹r are the two women' (QUR-7.80). c) Another woman figure from QUR-7. The inscription refers to 'the slave girl'. In contrast to the women in Figures 4.2 and 4.3a, her hair is sticking straight up (QUR-7.111). d) A woman figure with a similar hairstyle to the one in Figure 4.3c. The translation of the associated inscription is unclear (QUR-733.15).

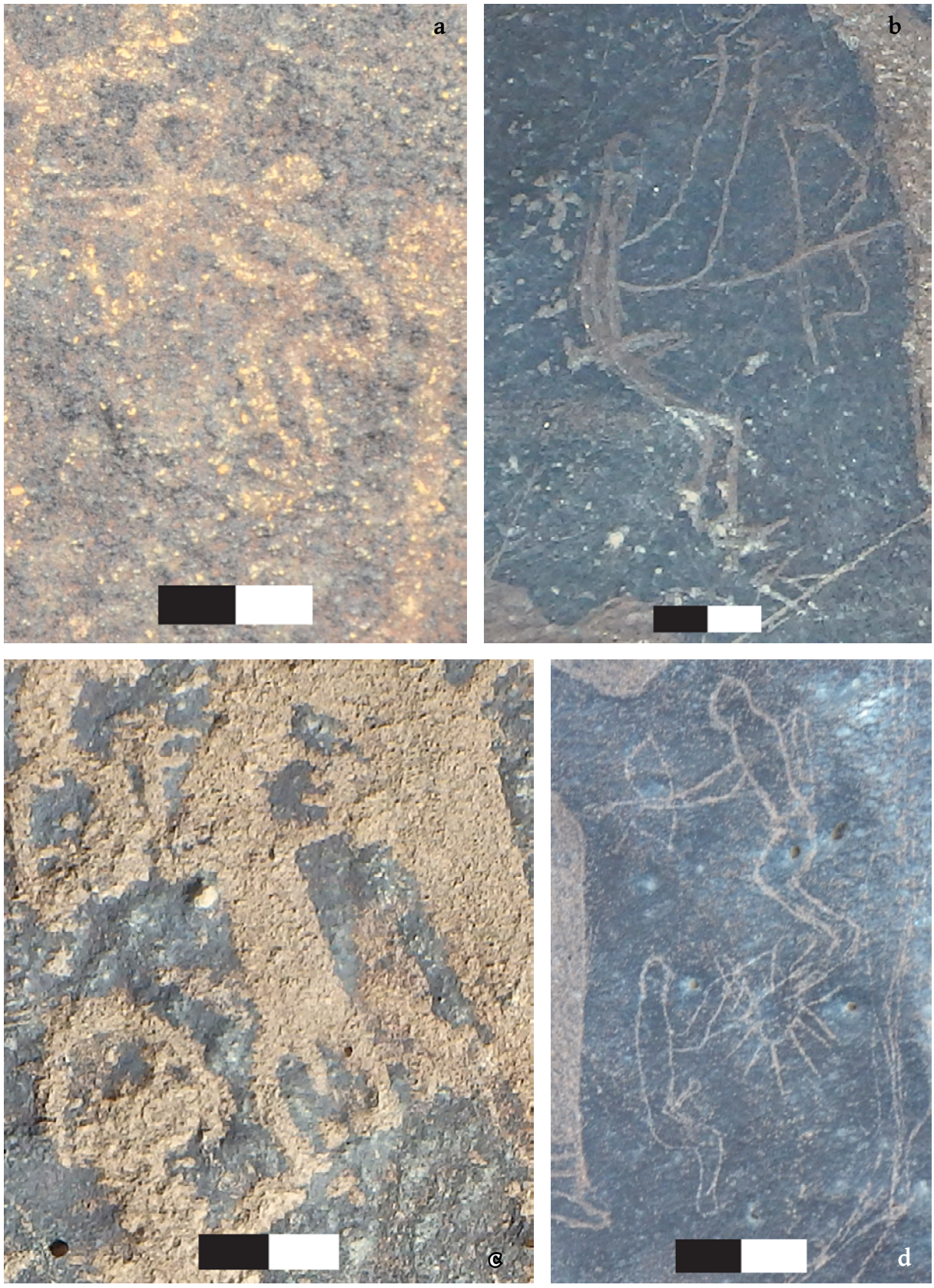


Figure 4.4. Examples of anthropomorphic figures, with and without objects (scale bar = 2 cm). a) An archer, featured in the hunting scene shown in Figure 3.8 (QUR-137.73). b) An anthropomorph holding a leadrope and bow and arrow. The figure also appears to have a sword at his/her waist (QUR-171.22). c) Male anthropomorphc figure holding his arms up in the air. One of the few anthropomorphs depicted with a phallus (QUR186.171). d) Two anthropomorphic figures from the raiding scene shown in Figure 4.2. One is holding a bow and arrow and has a quiver on his/her back. The other is also holding a bow and arrow and his phallus is depicted (QUR-449.2).

Table 4.5. The types of objects and the frequency with which they are depicted being held by anthropomorphs on foot and on a mount.

Object	N of anthropomorphs on foot	% of anthropomorphs on foot with objects	N of riders	% of riders with objects
Bow	86	53.1%	0	0.0%
Bow and leadrope	1	0.6%	0	0.0%
Bow and quiver	8	4.9%	0	0.0%
Bow and shield	3	1.9%	0	0.0%
Bow, quiver, and shield	0	0.0%	1	0.9%
Leadrope	12	7.4%	0	0.0%
Leadrope and spear/lance	2	1.2%	0	0.0%
Leadrope and unclear object	2	1.2%	0	0.0%
Shield	1	0.6%	0	0.0%
Shield and unclear object	1	0.6%	0	0.0%
Spear/lance	1	0.6%	67	61.5%
Spear/lance and shield	6	3.7%	6	5.5%
Spear/lance and sword	0	0.0%	1	0.9%
Sword	5	3.1%	1	0.9%
Sword and shield	6	3.7%	3	2.8%
Unclear object	28	17.3%	30	27.5%
Total	**162**	**100.0%**	**109**	**100.0%**
No object	124		168	
Total anthropomorphs on foot/riders	**286**		**277**	

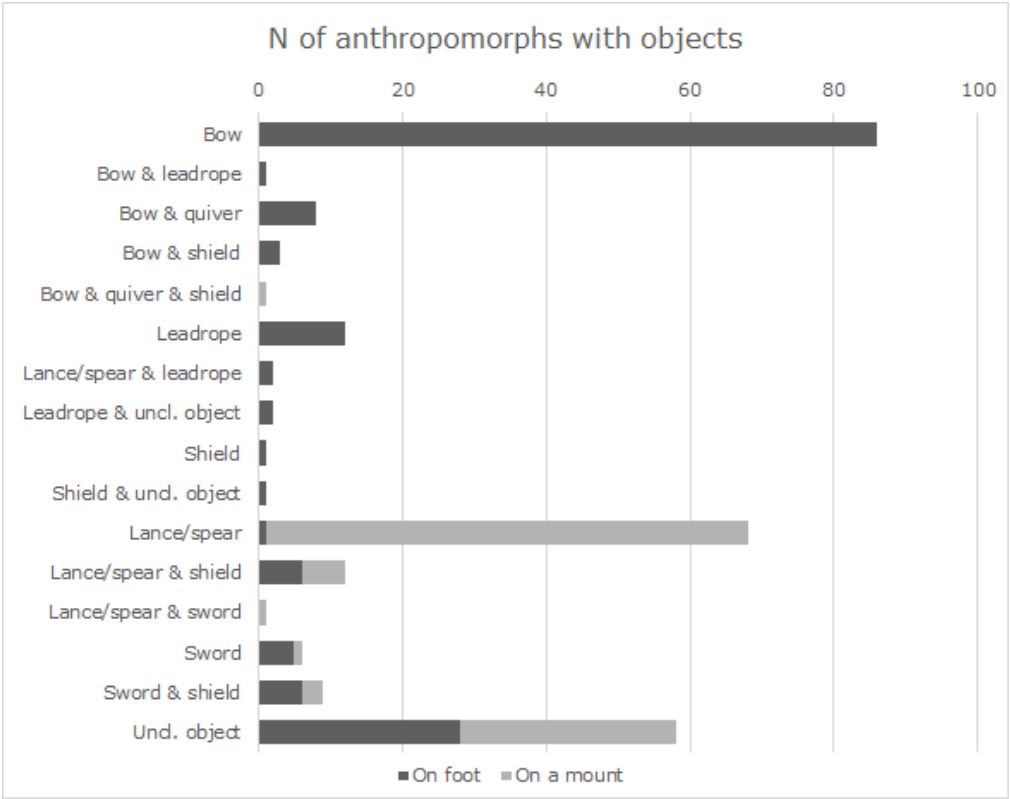
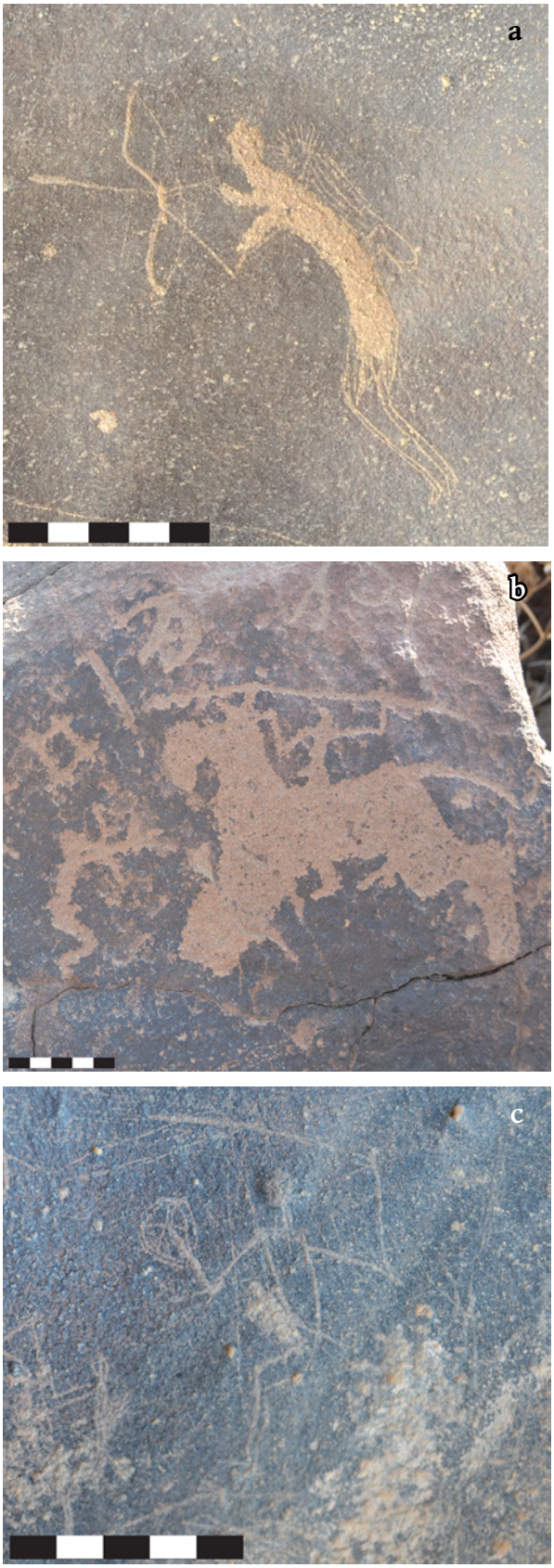


Figure 4.5. Stacked bar graph showing the number of anthropomorphs on foot and on a mount holding different types of objects.



person in a scene. The bow depicted in the rock art is most likely the composite bow (K. Akkermans 2017; M. Macdonald pers. comm. 2017).

The second most common object is the lance/spear. These two types of weapons are difficult to distinguish from one another, but according to Potts' (1998: 183) criteria, the term 'spear' refers to a "light projectile which could be thrown over a considerable distance at an enemy and for which the term 'javelin' is sometimes employed", whereas the term 'lance' is used for "a much heavier and longer weapon which, although it could be thrown at a short distance, was more commonly hand-held and used for thrusting in close combat". There do seem to be some differences in length in the weapons depicted in the rock art. The weapons that are long in relation to the figure holding them are usually held by riders and probably represent lances (Figure 4.6b). The anthropomorphs on foot tend to hold a weapon that is shorter; these probably represent spears (Figure 4.6c) (Brusgaard and Akkermans in press). By far the majority of this weapon category is held by riders; there are 74 riders with a lance/spear and only nine people on foot. In general, the riders are depicted with less variety of weapons than the anthropomorphs on foot.

The last identifiable weapon is the sword, but it is a problematic category. Due to the lack of detail and small dimensions, it is difficult to distinguish the sword from the lance/spear. If the weapon is being held at the end, if it is depicted with a cross-guard, or hanging from the hips of a person, then it is likely to be a sword (Figure 4.6d). Few swords have been identified in comparison to the other weapon types.

Swords and lance/spears held by anthropomorphs on foot are often being used in combination with a shield (Figure 4.6c). In total, 26 figures are depicted holding a

Figure 4.6. Examples of anthropomorphs with weapons. a) An archer depicted with a detailed quiver on his/her back. The figure is depicted in the hunting scene shown in Figure 1.6 (QUR-529.23). b) A rider on horseback holding what is probably lance. The rider is fighting a person with a bow and arrow (QUR-186.149). c) An anthropomorphic figure with a shield and a sword or spear and possible a sword at his/her waist (QUR-64.6). d) A rider on horseback hunting an oryx. The rider is holding a lance and with a sword at his/her waist. The inscription refers to 'the horse(man) (QUR-139.12).

Figure 4.7. An anthropomorphic figure holding or leading a dromedary camel by a leadrope (QUR-148.57).

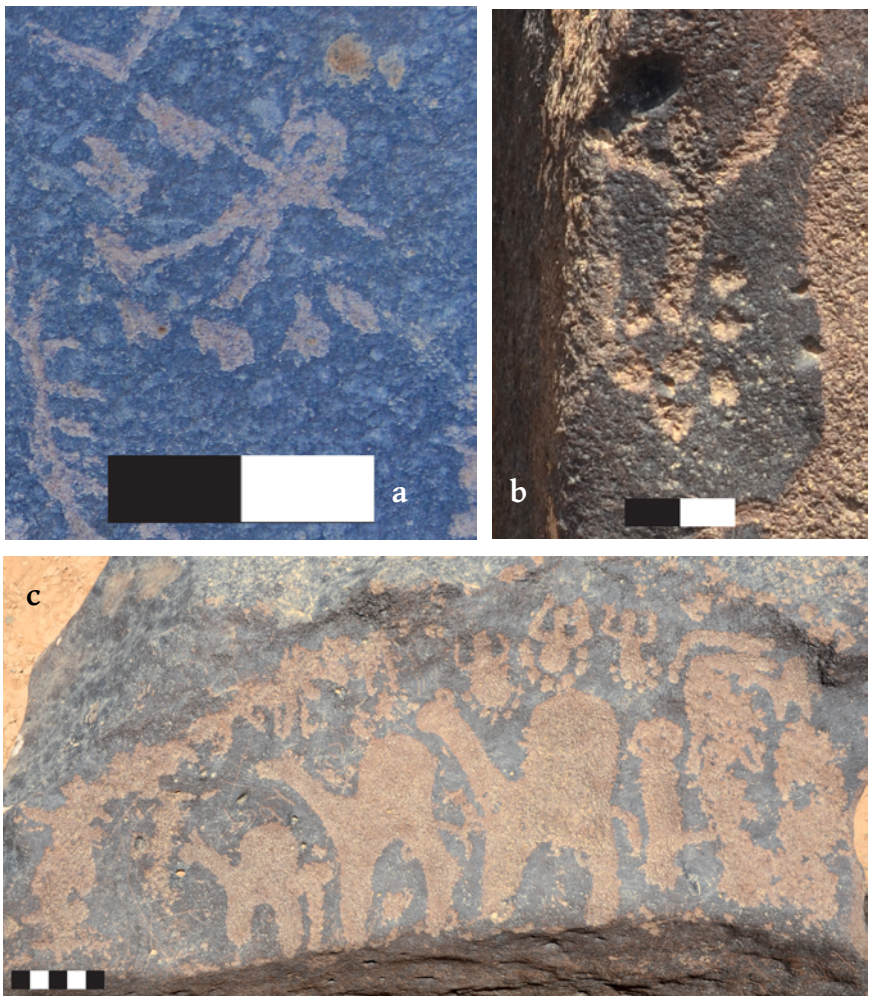


Figure 4.8. Examples of 'anthropomorph with dots' figures. a) A small incised anthropomorph with seven dots in semi-circle under his/her legs (scale bar = 2 cm) (QUR-786.7). B) An anthropomorph with his/her arms raised up and seven dots clustered under his/her body. The legs are not depicted. This figure is depicted together with a dromedary camel and an inscription (see Figure 3.10) (scale bar = 2 cm) (QUR-307.5). c) Three anthropomorph with dots figures. Each has his/her arms raised up, no legs, and seven dots in a semi-circle under their torsos. The figures are depicted above three camels (QUR-294.55).

shield, all of which are small and round. The majority of them have patterns carved into them, which range from cross-hatching, crosses, and radiating lines to feather-like carvings and circles. Of the 198 weapon depictions in the Jebel Qurma rock art, 126 of them are depicted within the context of a hunting scene or a conflict/combat scene.

Lastly, there is one other type of object, the lead rope, which is always depicted being used by a person holding an animal, often a camel (Figure 4.7) (see § 4.7.4).

4.3.4. Anthropomorph with dots and lines

Another enigmatic category of anthropomorphic motifs is the 'anthropomorph with dots'. In total, 26 anthropomorphic figures are depicted with a number of dots, often seven, under them (Figure 4.8). These resemble the abstract motif 'set of dots', which are also often depicted in multiples of seven. In this motif, the dots occur in direct association with an anthropomorph, depicted underneath the body. In some cases, the anthropomorph has no legs (Figure 4.8b and c). The motif 'line with dots' may be a stylised version of the anthropomorph with dots (see § 4.5.4). Like the abstract motif, this motif occurs alongside scenes and inscriptions, but never in isolation. There is one similar type of figure that has lines instead of dots (Figure 4.9).

4.3.5. Hybrids

There are two figures that appear to be hybrids between a human and an animal and could thus classify as either anthropomorph or zoomorph (Figure 4.10). Due to their anthropomorphic appearance, they have been categorised as

anthropomorphs. It is possible that one of them is a meant to represent a person riding an animal, but the carving is very ambiguous.

4.4. Zoomorphs

4.4.1. Introduction

Zoomorphs make up the largest type of figure in the rock art, with a total of 3310 figures and 24 different motifs (Figure 4.11). The majority can be classified under the categories 'camels', 'bovids', 'equids', and 'carnivorans' (Figure 4.12). Additionally, there are a large number of ostriches, the only bird depicted in the rock art. Many zoomorphic figures could not be identified to species level. Camels are the dominant motif and surpass the other motifs in frequency by an impressive 1000 figures. Bovids are the second most common type of motif, followed by equids, and then ostriches. Canids and felids make up a small percentage of the zoomorphic figures. Counting by species, the dromedary camel is the most common, followed by the ostrich. The majority of the animals depicted in the rock art are domestic, but this includes the large number of dromedary camels (Table 4.6).

Figure 4.9. An 'anthropomorph with lines' figure. There are seven parallel lines incised on either side of his/her body. The figure is depicted together with a rayed circle and seven lines (QUR-834.2).

Figure 4.10. Two possible hybrids between an anthropomorph and a zoomorph (QUR-802.6).

There are an additional three motifs that do not fall under any of the other zoomorphic categories. There are two figures which appear to be animal hybrids, both with the distinctive hump of a dromedary and the distinctive long horns of an oryx (Figure 4.13). Whether this was intentionally done by the carver or one of the two elements was added later cannot be discerned. Additionally, there is one occurrence of a lizard figure and one scorpion (Figure 4.14). They are the only known zoomorphic figures in the area that depict something other than a mammal or ostrich.

In the following sections, I present the results of the analyses of the zoomorphic motifs by the broad categories shown in Figure 4.12. For all of the different animals, I make use of a number of different sources to reconstruct their past presence and possible role in the region, as described in Chapter 3.

Figure 4.11. A panel carved with a variety of different zoomorphic motifs, including ibex, equids, oryx, canids, and ostriches (QUR-258.61).

Table 4.6. The number and percentage of wild and domestic animals.

Type of zoomorph	Number of figures	% of zoomorph figures
Wild	708	21.4%
Domestic	1698	51.3%
Unknown	906	27.4%
Total	**3312**	**100.0%**

4.4.2. Camels

Introduction

Camel motifs dominate the Jebel Qurma material, making up 45% of the zoomorphic figures and 33% of all figures (Table 4.3) (Figure 4.15). Five different motifs can be recognised within this category: the dromedary or Arabian (one-humped) camel,

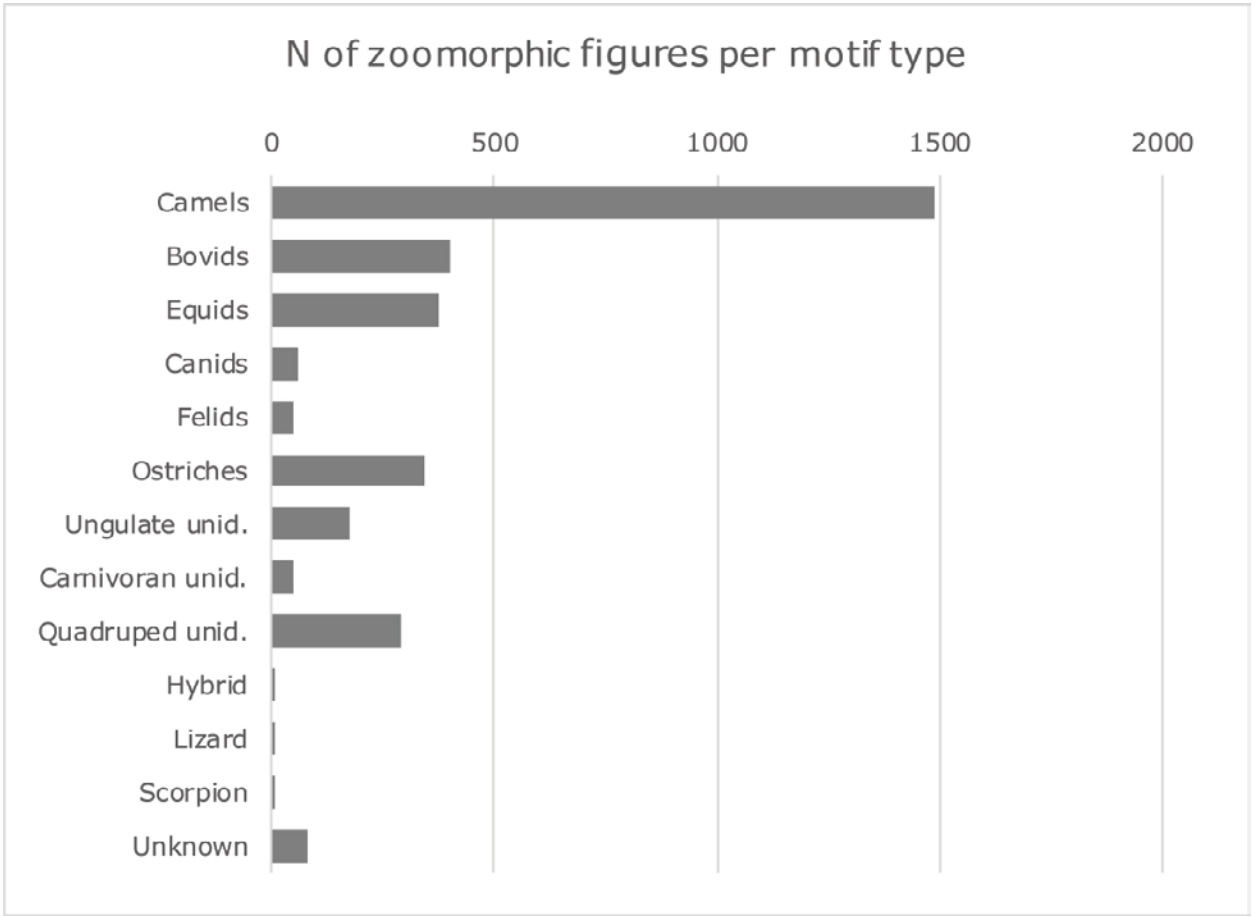


Figure 4.12. Bar graph showing the frequency of the different categories of zoomorphic motifs.

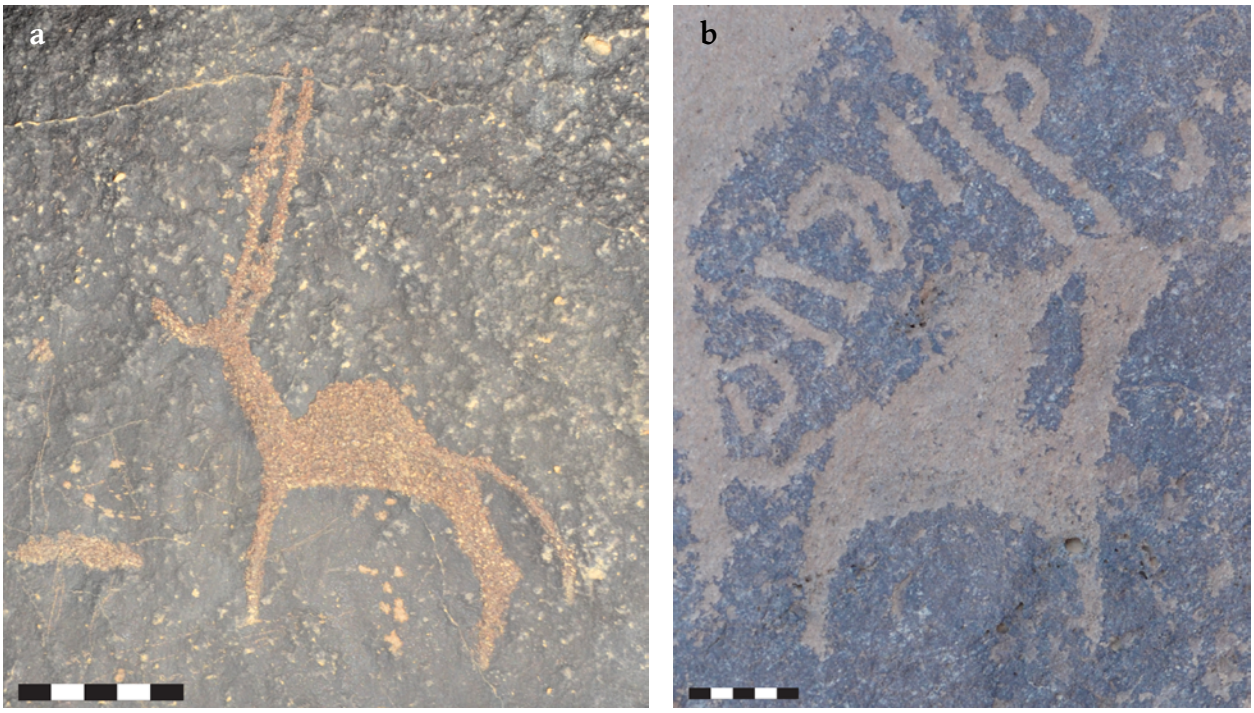


Figure 4.13. Two hybrid zoomorphic figures with the hump of a dromedary camel and the long horns of an oryx (a) QUR-2.383. b) QUR-372.134).

Figure 4.14. a) A lizard figure (QUR-148.135). b) A scorpion (QUR-370.42).

young dromedary camel, dromedary camel with rider, young dromedary with rider, and the Bactrian (two-humped) camel (Table 4.7). There is one camel *unid.* figure for which it is not clear whether it is a Dromedary or a Bactrian camel due to weathering. However, in general, the distinction between the two camel species is easy to make in the rock art based on the number of humps depicted (Figure 4.16). In reality,

Table 4.7. The number and percentage of the different types of camel motifs.

Motif	Number of figures	% of camel figures
Bactrian camel	2	0.1%
Dromedary camel	1285	86.3%
Dromedary camel with rider	39	2.6%
Young dromedary camel	153	10.3%
Young dromedary camel with rider	9	0.6%
Camel unid.	1	0.1%
Total	**1489**	**100.0%**

the two species differ in more than one way due to their respective climate adaptations. The dromedary (*Camelus dromedarius*) is adapted to the hot, arid climates of the desert regions of North Africa and the Middle East while the Bactrian (*C. bactrianus*) is adapted to the warm deserts and cold mountains of Central Asia.

The dromedary camel

The history of the dromedary camel in the Middle East is tightly interwoven with the history of the peoples of the desert. The dromedary was essential for the development of the region as it was the backbone of the long-distance caravan trade and it facilitated the opening up of new, marginal places to human exploitation (Almathen *et al.* 2016; Bulliet 1975; Köhler-Rollefson 1993; Rosen 2017). The animal's role in the development of the ancient caravan cities such as Palmyra is unmistakable (Seland 2015), but it is especially the dromedary's use in past and present nomadic societies for which it is iconic. Historical, archaeological, and epigraphic sources attest to its significance in the societies of the desert of Arabia from the first millennium BC onwards. It is therefore perhaps unsurprising that the dromedary camel is ubiquitous in the desert rock art of Arabia. It dominates rock art corpora from Shuwaymis, Saudi Arabia (Guagnin *et al.* 2016), Hismaic rock art from southern Jordan (Corbett 2010), and Safaitic rock art from the Syro-Jordanian desert (Brusgaard forthcoming; Macdonald 1993). The dominant presence of the dromedary in Arabian rock art was noted as early as 1932 (Rostovtzeff 1932) and its frequent mention in Safaitic inscriptions has been remarked upon as well (Macdonald 1993).

The question of when and where the dromedary was domesticated is still debated by many, but new research suggests that the domesticated dromedary was not widely present in the ancient Near East before 1000 BC and that domestication probably occurred in the late second millennium BC (Almathen *et al.* 2016; Magee 2015; Sapir-Hen and Ben-Yosef 2013). The dromedary likely quickly become an essential provider, affording secondary products such as wool, dung for fuel, and milk, which has more health benefits and is available for more months per year than sheep or goat's milk (Magee 2014; Rosen and Saidel 2010). Perhaps most iconically, its conversion into a pack and riding animal transformed the region. Often aptly called the 'ship of the desert', the dromedary's physiological characteristics allowed people to traverse regions and distances hitherto impossible, opening up trade routes and new areas for exploitation (Bulliet 1975; Köhler-Rollefson 1993; Magee 2014; Seland 2015).

According to some, the introduction of dromedaries into the desert societies led to the development of a singular relationship with the dromedary camel in their highly specialized subsistence strategy: camel pastoralism (Köhler-Rollefson 1993: 185). However, other scholars have argued that the incorporation of the domesticated dromedary camel in Iron Age societies in the Near East introduced camel pastoralism to a mixed subsistence strategy that included hunting and gathering practices (Betts 2008; Makarewicz 2013; Magee 2014; Rosen 2002). Either way, the significance of the dromedary camel in these societies cannot be underestimated.

Considering the importance of the dromedary camel for the region, the frequency with which it is depicted in the Jebel Qurma rock art is not surprising. Camels are also mentioned a total of 307 times in the Safaitic inscriptions, most of which in the customary form 'By [name], son of [name], is the [camel]' to sign a depiction of a camel. In Jebel Qurma, there is only one mention of camels in an inscription with a narrative component.[4] At QUR-952, there is a depiction of a camel with a bound leg accompanied by the inscription where the author states 'he kept watch for the camel(s)' (Figure 4.17).[5]

Several different words are used for camel, depending on age and gender. All are attested in the Jebel Qurma corpus. The word *nqt* (singular) and *nqtn* (plural) is used for 'she-camel(s)' while *gml* (singular) and *gmln* (plural) for 'he-camel(s)'. The word *hy* is also used in signing depictions of male camels (Figure 4.15e). The 'young camel' is denoted by *bkr*, while the 'young she-camel' is the *bkrt* (singular or plural) and *brktn* (dual)[6] (Figure 4.15a). It is unclear whether *bkr* refers to a male young camel or a young camel in general. There is also one possible attestation of the word *rkb*, which means

[4] An example of its use in a narrative inscription from another region, from Wādī al-ʾAḥīmr, Jordan: By Rgl son of Sʾhm...and he migrated to the inner desert with the camels and so O Lt and Sʾʿhqm [grant] security (AAEK 396).

[5] QUR-952.48.1

[6] I.e. 'the two young she-camels'

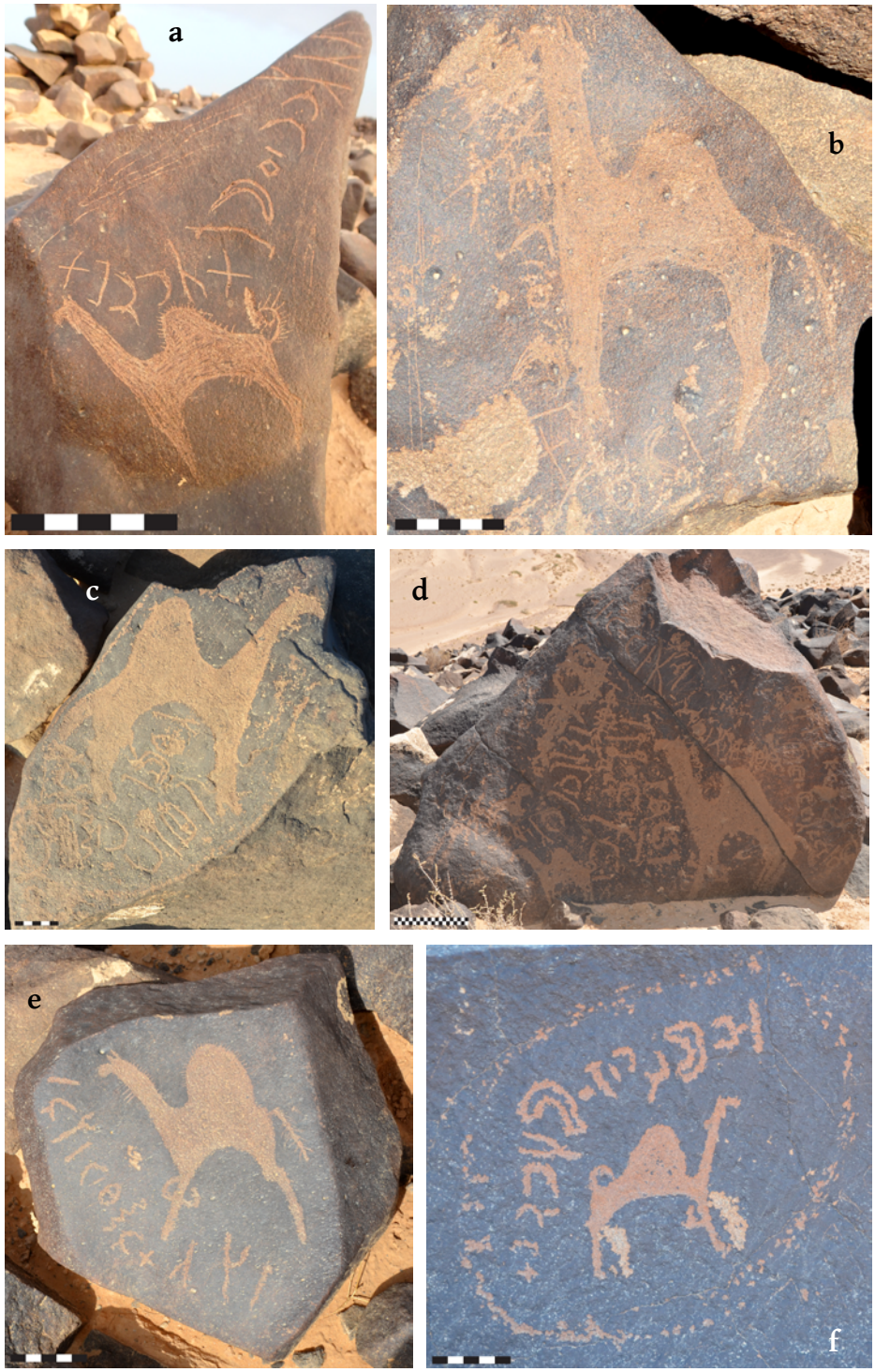


Figure 4.15. Examples of dromedary camel figures. a) A female dromedary camel figure made entirely by incisions. She has incised hairs on her hump and tail and her udders are also depicted. The inscription refers to 'the young she-camel' (QUR-171.146). b) A male dromedary camel figure made with an incised outline and pounded in-fill and incised ears. The inscription refers to *gml*, 'the he-camel' (QUR-202.8) c) A male dromedary camel made by pounding technique. The inscription refers to 'the he-camel' (QUR-2.528) d) A large panel carved with various inscriptions and two camel figures: a large male camel on the right and a smaller female camel on the left. One of the inscriptions refers to *nqt*, 'the she-camel', and two refer to gml, the male camel (scale bar = 20 cm) (QUR-2.363). e) A neatly pounded male dromedary camel with incised hairs on his neck, hump, and tail. The figure is associated with an inscription referring to *hy*, the he-camel (QUR-529.14). f) a female dromedary camel with her front leg raised, probably indicating that it is bound. The inscriptions refers to 'the young she-camel' (QUR-439.13).

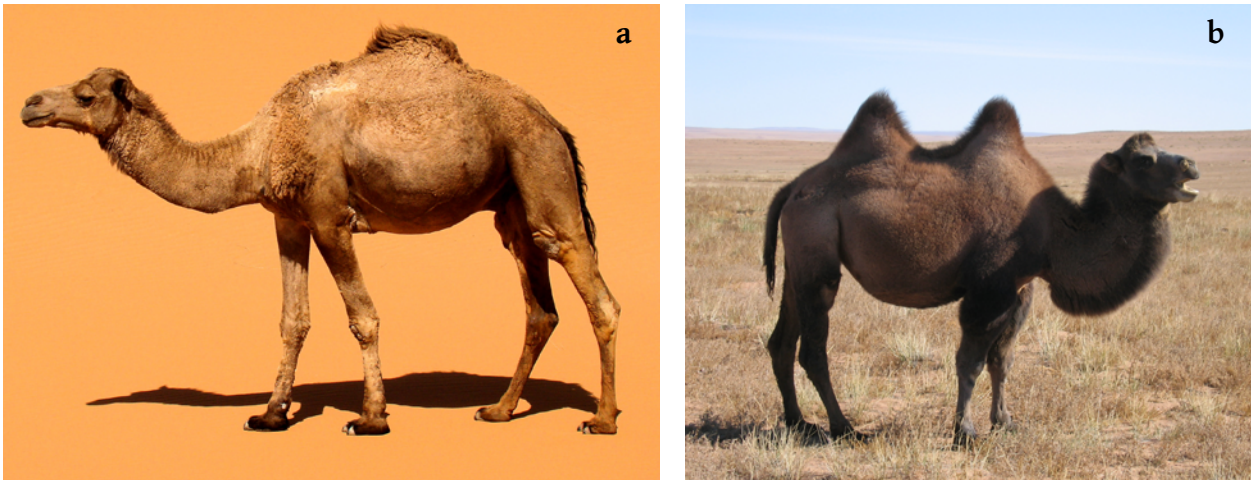


Figure 4.16. a) The dromedary camel. Photo by Bjørn Christian Tørrissen, distributed under a CC BY-SA 3.0 license
b) The Bactrian camel. Photo by Bouette, distributed under a CC BY-SA 3.0 license

Figure 4.17. A male dromedary camel with a raised front leg, indicating that it is bound. The inscription states 'he kept watch for the camel(s)' (QUR-952.48).

'the riding camel'; however, the inscription is very weathered.[7]

The inscriptions signing an image of a camel have been used to help identify the age and gender of the depicted camel. Additionally, small camels depicted nursing from adult female camels are identified as a young camel (Figure 4.18). Young camels occur 162 times in the Jebel Qurma region. The other 1324 camels cannot all be assumed to be adults and have thus not been identified as such, but the distinction of the words for 'young' may imply that they are. The dromedary camel motif and the young dromedary are divided into two categories: those with riders and those without. In contrast to the equids (see below), there are relatively few dromedaries depicted with a rider: 48 in total and only 3.2% of the camel figures (Figure 4.19).

Figure 4.18. A female camel nursing a young camel. The mother camel has been made using an incised outlined and filled in by pounding. The young camel has been carved as an incised outline (QUR-137.90).

The Bactrian camel

There are two Bactrian camels in the Jebel Qurma rock art, recognisable by their two humps. Both are male and depicted with a female dromedary (Figure 4.20). One of them is depicted being led by an anthropomorph and it is accompanied by a Safaitic inscription in which the

[7] QUR-64.73.4

Figure 4.19. This scene features a rider on camelback fighting an archer while another archer stands behind the camel. It is one of the few depictions of a camel rider. The scene has been effaced various times (QUR-551.50).

author signs his name. Although the Bactrian camel seems out of place in the rock art of the Black Desert, its presence in the ancient Near East is attested in several sources. Epigraphic evidence suggests that the Assyrians were in possession of two-humped camels, gaining them as either booty or tributes and that these animals may have been 'highly prized royal gifts' (Potts 2004: 153, 155). Depictions of the Bactrian camel and figurines occur increasingly frequently in Asia Minor after the Achaemenid period (Potts 2004: 151).

From later periods in the Near East, there is also evidence of a fascinating phenomenon: the Dromedary-Bactrian hybrid. Excavations in UAE have revealed hybrid bones from camel graves dating to the first two centuries AD and a possible hybrid bone has been found in a Roman context in Troy (Potts 2004: 159). Ethnographic evidence on the breeding of camel hybrids, collected from across the Middle East and Central Asia, shows that the purpose is, as with all hybrids, to create an animal improved by the best qualities of its father and mother. The best hybrids are bred from a

Figure 4.20. a) A male Bactrian camel is being led by an anthropomorphic figure. They are depicted together with a female dromedary camel (QUR-802.8). The author has only signed his name. b) A male Bactrian camel depicted alongside a female dromedary camel. The Bactrian camel's tail has been modified in more recent times, judging by the colour of the patina (QUR-947.1).

Table 4.8. The number and percentage of the different types of bovid motifs.

Motif	Number of figures	% of bovid figures
Gazelle	6	1.5%
Ibex	104	25.9%
Ibex or gazelle	87	21.7%
Oryx	101	23.9%
Bovid unid.	100	24.2%
Young bovid unid.	3	0.7%
Total	**401**	**100.0%**

Figure 4.21. a) Four ibex with the characteristic scimitar shaped horns and a small upright tail. They are being hunted by a felid (QUR-64.61) b) Four ibex being hunted by a felid, probably a lion. Above the scene is a partially effaced oryx, an ostrich, and an equid (QUR-965.46).

male Bactrian and a female dromedary, producing a larger, stronger animal, able to carry far greater loads than the dromedary or Bactrian (Potts 2004: 156-7).

Seen in this light, the two depictions of Bactrian camels in the Jebel Qurma corpus become even more interesting. Both are male and both are depicted with a female dromedary. The Bactrian camel figure being held by a person and associated with a Safaitic inscription is a clear indication that the people who wrote Safaitic were aware of the existence of the two-humped camel. Moreover, the inclusion of the female dromedary with the male Bactrian may suggest that they were even aware of the Bactrian-dromedary hybrid.

4.4.3. Bovids

Introduction

Bovids are a family of mammals placed in the order *Artiodactyla* (even-toed ungulates). Among others, it includes antelopes, cattle, and goats. In the Jebel Qurma rock art, there are 401 figures that represent bovids (Table 4.8). Approximately a quarter of these could not be identified to species level (the 'bovid *unid.*').

The ibex and the oryx

Two clear species can be recognised among the figures: the Nubian ibex (*Capra nubiana*), the most common of the bovid motifs (Figure 4.21), and the Arabian Oryx (*Oryx leucoryx*), which is a close second (Figure 4.22, Figure 1.7). The two types of bovids are also often depicted together in one composition (Figure 4.23). Both species existed in large numbers throughout most of the Arabian Peninsula, including Jordan, until the previous century (Figure 4.24). The Arabian Oryx inhabits the stony and sandy deserts of Arabia. Its numbers were in steady decline due to hunting but since its reintroduction into several areas, the population is now stable (IUCN SSC Antelope Specialist Group 2011). The Nubian ibex is native to the mountainous terrain of several Middle Eastern countries, including Jordan and Saudi Arabia, but it is distributed across a diversity of habitat types (Habibi and Grainger 1990) and at lower elevations than other ibex species (Gross *et al.* 1995). Its existence in the Middle East has also been severely threatened due to hunting and competition with livestock (Alkon *et al.* 2008).

The presence of ibex and oryx in the area is also confirmed by travellers' logs from the 19th and early 20th

Figure 4.22. a) An oryx being attacked by a canid. The oryx has the characteristic long, straight horns and hump behind its neck. The inscription refers to 'the bull' (QUR-449.21) b) An oryx with the same long, straight horns and hump behind its neck. A gap has been left in the in-fill on its head (QUR-2.163).

centuries (Doughty 1888: 327-8; Musil 1927: 25-6; cf. Hatough-Bouran and Disi 1991). The oryx (in older literature referred to by its previous name, the Beatrix antelope) and the ibex are described as impressive, often beautiful animals by these early travellers and it is noted that they are hunted by the desert nomads (Doughty 1888: 327-8; Musil 1927: 25-6). The oryx also often features in pre-Islamic poetry, most notably in the hunting poems, or *tardiyyah* (G. Smith 1990). Additionally, in the classic odes (*qasidah*), in which the poet describes his journey through the desert with his mount, the she-camel, the camel is often compared to wild animals, including the oryx cow or bull, the onager, and the ostrich (S. Stetkevych 1993). Interestingly, ibex do not feature in pre-Islamic poetry.

Figure 4.23. A panel carved with two ibex, two oryx, and three ostriches. Ibex and oryx figures are often depicted in the same composition (QUR-2.513).

Bone preservation is poor in the Arabian deserts, so there is limited knowledge on the exploitation of these animals in the past. However, ibex bones have been found in Palaeolithic and Neolithic contexts in Jordan (Hatough-Bouran and Disi 1991). Further to the south, there is evidence from the Iron Age site of Muweilah, UAE, that oryx were hunted and exploited (Magee 2014: 321).

In the Safaitic rock art, the Nubian ibex and Arabian oryx are clearly recognisable when their distinctive features are depicted. For the ibex, these are the long, scimitar-shaped horns and it is usually depicted with a short tail sticking straight out or up. Surprisingly, only three ibex figures feature the characteristic ridges on the horns (Figure 4.25 and Figure 6.7); most are depicted with the more stylised scimitar-shaped horns. The distinctive features of the oryx are the long, straight horns, usually in combination with a small hump behind the neck. It is also often depicted with a long tail with a tuft of hair at the end.

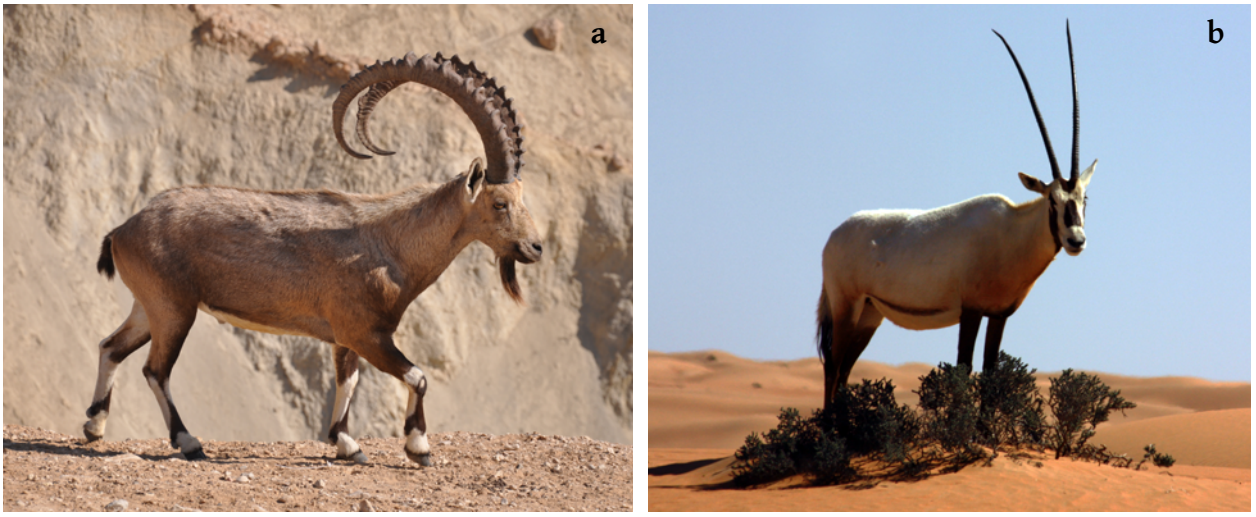


Figure 4.24. a) The Nubian ibex. Photo by Netzach Farbiash, distributed under a CC BY 2.5 license. b) The Arabian oryx. Photo by Sharp Photography, distributed under a CC BY-SA 3.0 license

Figure 4.25. This ibex has been depicted with ridges on its horns, a feature very pronounced in the Nubian ibex (QUR-958.2).

Oryx and ibex are also attested in Safaitic inscriptions, referred to by the word *dsy* (singular) and *dst* (plural), which can refer to either animal. In the Jebel Qurma inscriptions, all occurrences of these words are associated with images that represent oryx (Figure 3.7 and Figure 4.51). The word *wʿl* is used for ibex alone (Figure 4.26). Three other Safaitic words are used in association with oryx and ibex. In ten instances, oryx figures are associated with an inscription referring to 'the bull' (singular: *tr*; dual: *trn*), a word used to denote male bovids in Safaitic (Figure 4.27, Figure 4.22a, Figure 1.7). The phallus is often depicted on these animals as well (see § 4.6). There is one occurrence in the Jebel Qurma inscriptions of the word *ts*[1], conventionally translated as 'he-goat' (Figure 4.28). The caprid is facing an anthropomorph with a bow and arrow, indicating that the zoomorphic figure represents a wild goat. However, it does not have the typical scimitar-shaped horns of the ibex.

Additionally, 'she-goat' (*'nzt*) is attested once in association with a depiction of a caprid and 'the she-goats' (*'nz*) is attested once accompanying the depiction of six caprids and probably once more associated with three caprids (the inscription is poorly legible). In both depictions of multiple she-goats, they are faced by an archer, indicating that they are wild female goats (Figure 4.29, Figure 6.2). A further five zoomorphs have been identified as ibex based on this; they are identical in appearance to the identified she-goats and some even have the same pattern on their bodies. The female ibex are depicted with short horns, although without the slight scimitar shape of the real female ibex's horns. Considering that, of the real ibex, only the male ibex has long, scimitar-shaped horns, it is unclear whether the rest of the ibex motifs are meant to represent only males or ibex in general. This will be discussed further in § 4.6.

The gazelle

Only six gazelles have been identified in the rock art. These six figures occur together on one panel and are identified based on their association with a Safaitic inscription referring to *zby* ('the gazelles') (Figure 4.30). The gazelles have relatively long horns and an indiscriminate body shape. A few of them have a small hump behind the neck and a tufted tail, thereby also resembling oryx. The inscription has been taken to be the correct identification, but the oryx-like features and the otherwise lack of distinctive features means it is difficult to recognise other gazelles in the material based on only this group of gazelle depictions.

Figure 4.26. A large panel covered in multiple pictorial and textual engravings. On the top left is a carving of two ibex and an inscription referring to *wʿln*, 'the two ibex' (QUR-64.180).

Figure 4.27. A depiction of an oryx with an inscription referring to 'the bull' (QUR-148.130).

One might expect gazelles to occur in the rock art because, up until recently, gazelles existed in large numbers in the region. According to the IUCN SSC Antelope Specialist Group (2016, 2017a, 2017b) two species, the Dorcas gazelle (*Gazella dorcas*) and the Saudi gazelle (*G. saudiya*), now extinct, are known to have occurred in large numbers in the Arabian Peninsula and beyond until at least the mid-20th century, while a third, the Arabian gazelle (*G. arabica*), may have existed in Saudi Arabia (Figure 4.31). Additionally, the goitered gazelle (*G. guttorosa*) has been documented in bone assemblages from Palaeolithic and Neolithic sites in Jordan and has been reported by travellers in Jordan in the 17th to the 20th century (Chahoud *et al.* 2015; Hatough-Bouran and Disi 1991). Gazelle bones dominate archaeological hunting camps throughout the eastern *badia* and Negev from the Neolithic to Early Bronze Age periods (Chahoud *et al.* 2015: 236; Eisenberg-Degen and Rosen 2013: 245; Rollefson *et al.* 2008: 49).

In later periods, the gazelle features frequently in poetry and imagery. It is depicted in Umayyad mosaics and wall paintings and it is the most popular prey in hunting poetry from the Umayyad period as well as an important theme in later Arabic love poetry (Behrens-Abouseif 1997; Hatough-Bouran and Disi 1991; G. Smith 1990). Unlike the oryx, the gazelle does not figure in the older, pre-Islamic poetry (G. Smith 1990, 168).

Twentieth-century travellers to the region frequently describe large flocks of gazelles and the hunting of gazelles by desert groups using hounds, including the use of large stone enclosures to catch and kill them (e.g. Musil 1928: 26-7). Sadly, today gazelles are almost non-existent in the area due to overhunting since the introduction of motorised hunting (Mountfort 1964; Mountfort *et al.* 1965). The Saudi gazelle and Arabian gazelle are now extinct while the Dorcas gazelle population is continuously decreasing (IUCN SSC Antelope Specialist Group 2016, 2017a, 2017b).

Considering the prominence of gazelle bones in archaeological assemblages from various periods, the importance of the gazelle in later iconography and literature, and the existence of large herds of gazelles in recent times in this region, it is somewhat surprising that they do not feature more prominently in the rock art. Indeed, other rock art studies from the desert region have remarked that few gazelles are depicted (Eisenberg-Degen and Rosen 2013; Guagnin *et al.* 2016; Rollefson *et al.* 2008). Yet this may not necessarily be the case in the rock art of the Jebel Qurma region. As Table 4.8 shows, just over 20% of the bovids may represent either ibex or gazelles; these are figures with short backward curving or straight horns (Figure 4.32, Figure 3.8). The majority are depicted in hunting scenes and thus must represent wild animals. These could depict female ibex, which have short, scimitar-shaped horns, or gazelle, which, depending on the species, have short to medium length horns that curve backwards or backwards in a faint S-form. Equally, it cannot be ruled out that some of these figures are meant to

Figure 4.28. A caprid being hunted by an archer. The inscription refers to *ts*[1], 'the he-goat' (QUR-186.161).

Figure 4.29. The six caprids associated with an inscription stating 'the she-goats'. Top right: close-up of three of the figures. They have short horns and short tails that stick up. Bottom right: close-up of the other three figures, two of which have a pattern on their body. A small archer is situated in front of the goat on the left (QUR-1020.37).

Figure 4.30. A hunting scene featuring two archers and a dog hunting bovids identified as 'the gazelles' in the associated inscription (QUR-440.3).

Figure 4.32. Four bovids being hunted by a canid. The bovids could represent gazelles or ibex (QUR-2.617).

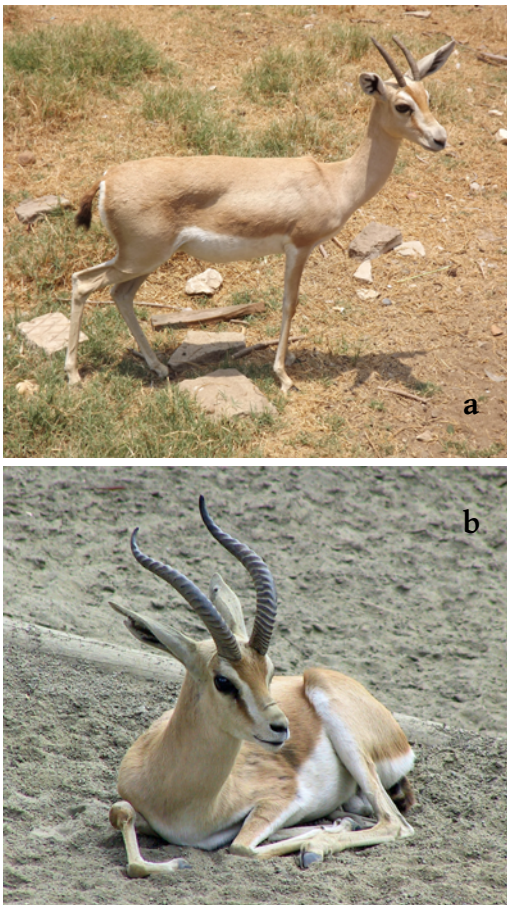


Figure 4.31. a) The Dorcas gazelle. Photo by Hatem Moushir, distributed under a CC BY-SA 3.0 license b) The Goitered gazelle Photo by auntie rain, distributed under a CC BY-NC-SA 2.0 license

represent bovids other than ibex or gazelles. Therefore, these figures have not been identified to species level. However, if they do actually represent gazelle, or even if only half do, then there is a relatively large number of gazelle depicted in comparison to the identified oryx and ibex. Interestingly, none of them resembles the bovids identified as gazelle (*zby*) by the inscription.

Bovids unid.

The majority of the 102 unidentifiable bovids are simplistic and lack detail, which is why they are impossible to identify to species level. They have horns but the length and shape are not clear enough to identify the zoomorph as an ibex, oryx, or gazelle. Most of the 'bovid *unid.*' probably represent one of these three species. There are also three figures which look like young bovids. Two of these appear to be nursing from an adult bovid much like the young camels (Figure 4.33). The third is depicted behind another bovid which is depicted in the same style but much larger, suggesting it is an adult and juvenile together. None of them could be identified as a particular species.

There are a few other figures that warrant mentioning because they do have particular details, but it is unknown which species they represent. One of these resembles a figure documented at Wisad Pools, Jordan, and which is interpreted as a member of the cattle family (Rollefson *et al.* 2008: 38, Figure 35) and a figure from Kilwa, Saudi Arabia, interpreted as an ox (Nayeem 2000: 45, Figure 1) (Figure 4.34a). The body shape and two large, curved horns do indeed suggest an animal from the Bos genus. There are two other figures that may also represent a species of cattle or perhaps a species of antelope. They have a small hump behind the neck like oryx and short horns that curve forward (Figure 4.34b).

Finally, there are three figures that are most likely a species of antelope. They also have humps behind

Figure 4.33. Two bovids and a young bovid nursing from one of them. Their long horns may indicate that they are meant to represent oryx (QUR-256.40).

the neck, but are of slimmer build and have horns that curve towards each other (Figure 4.34c). Two of them also have vertical stripes on their body, which could represent coat markings or patterning of the rock art (see Chapter 5.3). A similar petroglyph has been published by Dussaud (1929: Pl. XXVII, no. 182).[8] Although the tracing is highly stylised and might not be entirely accurate, the general shape of the bovid, its horns, and the vertical stripes on its body bear a striking resemblance to these three Jebel Qurma bovids.

It is unclear whether these figures are meant to represent cattle, antelopes, or another type of bovid altogether. Cattle are unexpected in the desert environment of northern Arabia, but nonetheless, they appear to be depicted occasionally in Arabian rock art. It is possible that they were witnessed elsewhere or that these figures are indicative of a past, wetter period (cf. Guagnin *et al.* 2016: 1827). It is not unlikely that other antelope species than the oryx were also (occasionally) present in the wider area. Furthermore, there are a small number of rock art figures from the eastern *badia* and from southern Jordan that probably represent another species of antelope with twisted horns (Rollefson *et al.* 2008: 26).

4.4.4. Equids

Introduction

Equids are the third most common family of animals depicted in the Jebel Qurma rock art (Table 4.9). They are generally very recognisable, but identifying specific members of the equid family, which includes species, subspecies, and hybrids, is problematic. Various scholars have written about how to distinguish between them in ancient Near Eastern images (e.g. Littauer and Crouwel 1979; Macdonald forthcoming; Moorey 1970). However, it can be a difficult task. Littauer and Crouwel (1979: 3) point out that 'in interpreting documents in all categories – osteological, artistic, textual – nine possibilities must be considered: hemiones, asses, and horses, and any of the six possible crosses between them.' For Safaitic rock art, three factors complicate the matter. Firstly, the figures' features tend to be fairly indiscriminate, making it hard to identify to species level. Secondly, while some of the figures are depicted in more detail and characteristic features can be recognised, such as the slim build, deep chest and more elegant head of the horse or the broad head, large ears, and tufted tail of the ass, the inscription sometimes then points us in the other direction. Macdonald (forthcoming: 10) describes a number of examples from other areas in the *harra* where a motif that appears to have horse-like features is accompanied by a Safaitic inscription using the word *ʿr*, which could translate as 'ass' or 'mule'. In the Jebel Qurma material, there is a carving of a motif that looks distinctly horse-like and even appears to have the dish-shaped face typical of the Arabian horse breed, which has been recognised in Saudi Arabian rock art (Arabian Rock Art Heritage 2018), but the inscription contains the word *ʿr* (see Figure 5.11). Therefore, we must be cautious in identifying equid motifs to species level based on their features alone. Thirdly, equids also present a challenge because the translation of the various inscriptions associated with equids is not always unambiguous, as will be explained further below.

For this reason, few species-specific categories are recognised. Instead, the motifs were classified based on three criteria: equids being hunted (wild asses), equids being ridden (which could be horses, donkeys, or horse-donkey hybrids), and the associated inscription, if it refers to the equid as, for example, an ass or a young equid. I will explain these criteria and the ambiguity surrounding the interpretation of the inscriptions and the identification of the equids further below. The 'equid with rider' motif is by far the most common, making up almost 50% of the equid figures. There is a large number of equids that could not be identified and a number that could not be identified beyond 'ass'. Figures that with certainty could be identified as a wild ass are few and there are a few young animals.

[8] Rees 182

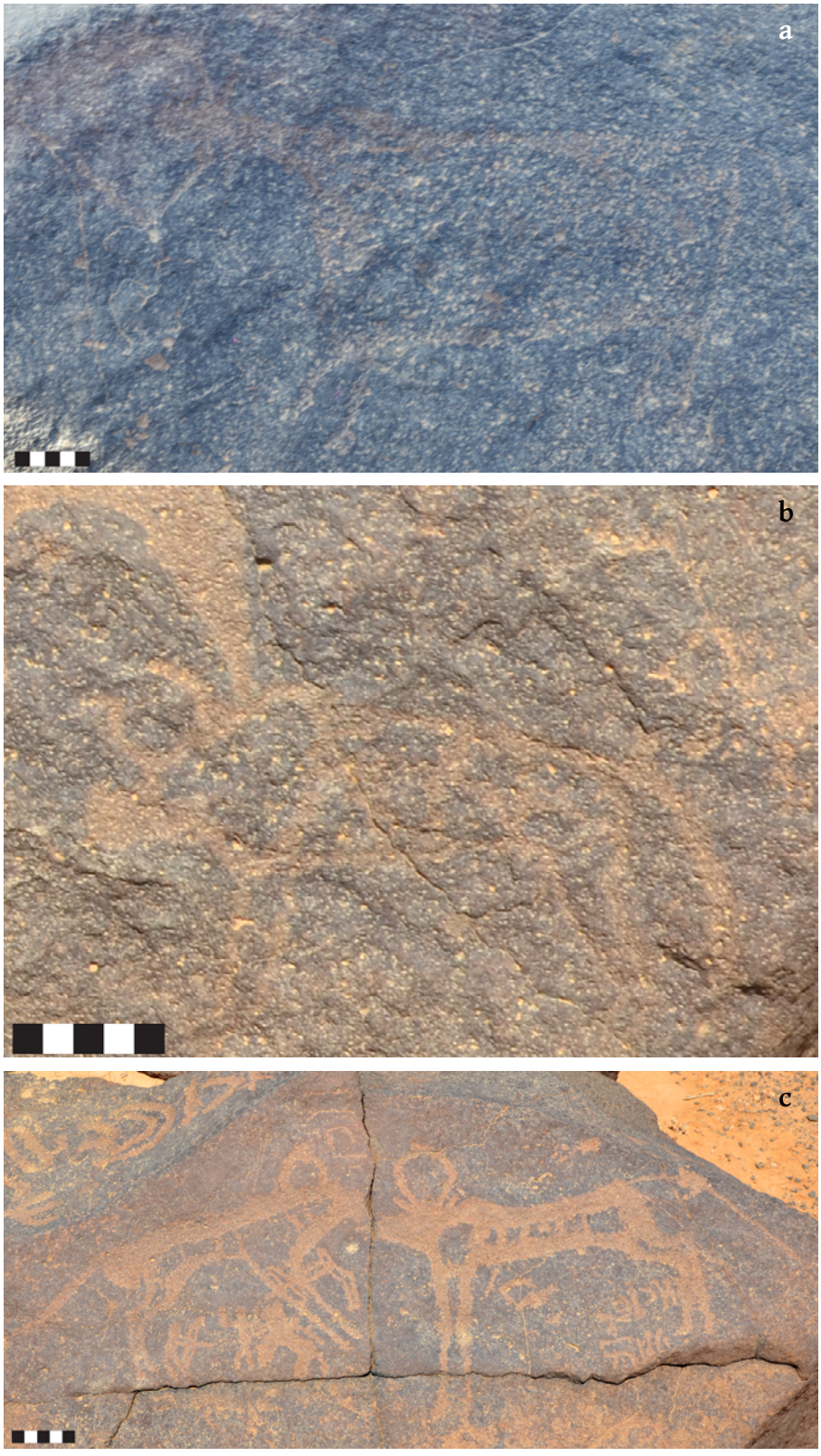


Figure 4.34. Examples of bovid figures that might represent cattle or antelope: a) This figure might represent a bull or cow; it resembles figures found elsewhere in Jordan and in Saudi Arabia. The figure is very weathered (QUR-27.15). b) A bovid with short, curving horns, a hump behind its head, and a pattern on its body (QUR-148.110) c) Two figures that probably represent a species of antelope. They also have curved horns, a hump behind their heads, and a pattern on their bodies, but they have a slimmer body shape. There are two inscriptions on this panel refer to 'the two bulls', indicating that they are male bovids. The left bovid superimposes or is superimposed by an archer (QUR-148.26).

Table 4.9. The number and percentage of the different types of equid motifs.

Motif	Number of figures	% of equid figures
Equid with rider	183	49.1%
Horse	3	0.8%
Young horse	2	0.5%
Wild ass	13	3.5%
Ass unid.	31	8.3%
Young ass unid.	1	0.3%
Equid unid.	134	35.9%
Young equid unid.	6	1.6%
Total	**373**	**100.0%**

Equids in the ancient Near East

The wild ass (hemione; *Equus hemionus*) is the indigenous wild equid of the Near East, the Asiatic wild ass. It consists of several subspecies, of which two were likely present in the Arabian Peninsula in antiquity: the Syrian wild ass (*Equus hemionus hemippus*) and the onager (*Equus hemionus onager*) (Figure 4.35) (Clutton-Brock 1992; Hemami *et al.* 2015; Kaczensky *et al.* 2015; Littauer and Crouwel 1979; Moehlman and Feh 2015). The smaller Syrian wild ass is native to the region from Saudi Arabia and Israel to Syria and Iraq while the larger onager is native to Iran, but there is some evidence that it occurred in northern Arabia as well (Hemami *et al.* 2015; Littauer and Crouwel 1979; Moehlman and Feh 2015). For all intents and purposes, the distinction between the two subspecies can be disregarded in the identification of the rock art. Today the onager is endangered and occurs only in two small populations in Iran (Hemami *et al.* 2015). The Syrian wild ass is sadly extinct; the last known animal died in captivity in Vienna Zoo in 1927 and the wild population disappeared around the same time (Clutton-Brock 1992; Moehlman and Feh 2015).

Although osteological identification of the wild equids is sometimes disputed, the wild ass appears to be present in archaeological contexts from the 6th millennium onwards (Littauer and Crouwel 1979: 24). Wild asses are also mentioned in a few texts from early 3rd-millennium clay tablets (Littauer and Crouwel 1979: 26) and depicted in Early Holocene rock art from Saudi Arabia (Guagnin *et al.* 2016). Additionally, the wild ass was hunted in Mesopotamia for sport and hide and reliefs from Nineveh show that hunting wild asses for sport continued through the reign of Ashurbanipal (668–627 BC) (Borowski 1998: 91; Clutton-Brock 1992: 37).

Little has been written about wild equids in this region in the Hellenistic and Roman periods, but their presence is attested by the references to them in pre-Islamic texts, such as Safaitic. Equids are also the object of the hunt in Safaitic rock art and possibly Hismaic rock art too, although these latter identifications are uncertain (cf. Corbett 2010: 157). The wild ass features prominently in the later pre-Islamic poetry, in which the she-camel of the author is often compared to a mare or stallion wild ass (J. Stetkevych 2002; S. Stetkevych 1993). In these poems, the wild ass is described in detail, often focusing on its speed, a quality clearly desired in the she-camel (J. Stetkevych 2002). This matches what is known of the wild ass species in general; they are elegant, fine-limbed, and fast equids (Clutton-Brock 1992).

There is also scant evidence for the role of domestic equids in the desert nomadic societies in these periods. As a result, not much literature has been written on the subject and much of what has been written is based on ethnographic parallels with Bedouin societies (e.g. Macdonald forthcoming). Civilian riding on equids is documented already by the 3rd millennium BC in the Near East, but widespread evidence for riding, especially for use in military settings and for hunting, does not occur substantially until the 9th century BC, primarily in Assyrian reliefs (Clutton-Brock 1992; Littauer and Crouwel 1979). Later Classical authors write of the Persians, describing them as 'a people of horseback riders' (Littauer and Crouwel 1979: 159) and, from the 3rd century BC, the Parthians of Central Asia became renowned for their horsemanship skills, including using a bow and arrow from horseback (Clutton-Brock 1992: 74). Much later, pre-Islamic and Islamic texts mention the use of horses and donkeys, including in ritual contexts (Dirbas 2014).

How this translates to the societies of the eastern Jordanian desert is unclear. The Safaitic texts mention horses, asses, and possibly mules and hinnies and at least 49% of the depicted equids are domestic. It is therefore clear that domestic equids, most probably horses and hybrids, were used by and of significance to these societies. The lack of osteological evidence from the eastern *badia* and lack of content in the desert inscriptions mentioning these animals means that it is difficult to reconstruct how or to what extent these animals were used.

In terms of suitability to the landscape, horses may seem the least obvious choice. In comparison to asses, they cannot go long without food and water, they require more substantial food, their hooves are vulnerable, and they are less sure-footed on difficult terrain. However, horses are fast and manoeuvrable, qualities that would have been very well-suited to activities such as hunting, raiding, and fighting from horseback. For this reason, horses may have fulfilled an important, prestigious role in conflict and hunting as they did among the Rwala

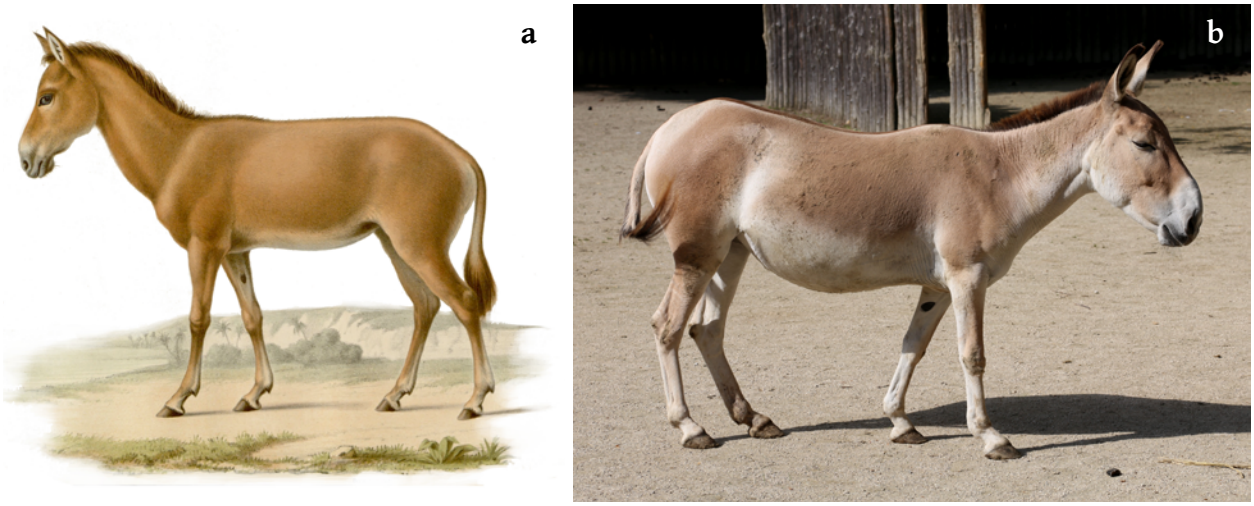


Figure 4.35. a) A drawing of the Syrian wild ass. Drawing by Georges Severeyns, 1869 b) the Asiatic wild ass, which is closely related to the now extinct Syrian wild ass. Photo by Rufus, distributed under a CC BY-SA 3.0 license.

Bedouin (Musil 1928). The slender equids in the rock art match the small, light horse breeds that were well-adapted to the Near Eastern landscape (Figure 4.36a) (Clutton-Brock 1992). They also resemble the later Arabian breed (Olsen 2018).

Donkeys are probably the more practical animal (Figure 4.36b). Borowski (1998: 91) states that 'of all domestic animals, the African ass [the ancestor of the donkey] is second only to the camel in performance in the desert due to its ability to graze on desert scrub and its power to go for long distances without drinking'. Therefore, Borowski (1998: 93) argues that the donkey must have had an important role in the Near East due to its ability to withstand the desert environment. There is also some evidence for this, with the frequent mention of the donkey in Bible texts and Assyrian documents reporting the claiming of donkeys as booty (Borowski 1998).

It is thus interesting that the donkey does not seem to be common in the Safaitic rock art (see below). This may be because the donkey was not suitable for activities deemed significant by the desert societies. The rider of a donkey has to sit far back on the loins due to the anatomy of the animal. The rider is thereby jolted by the movement of the donkey and therefore the donkey is

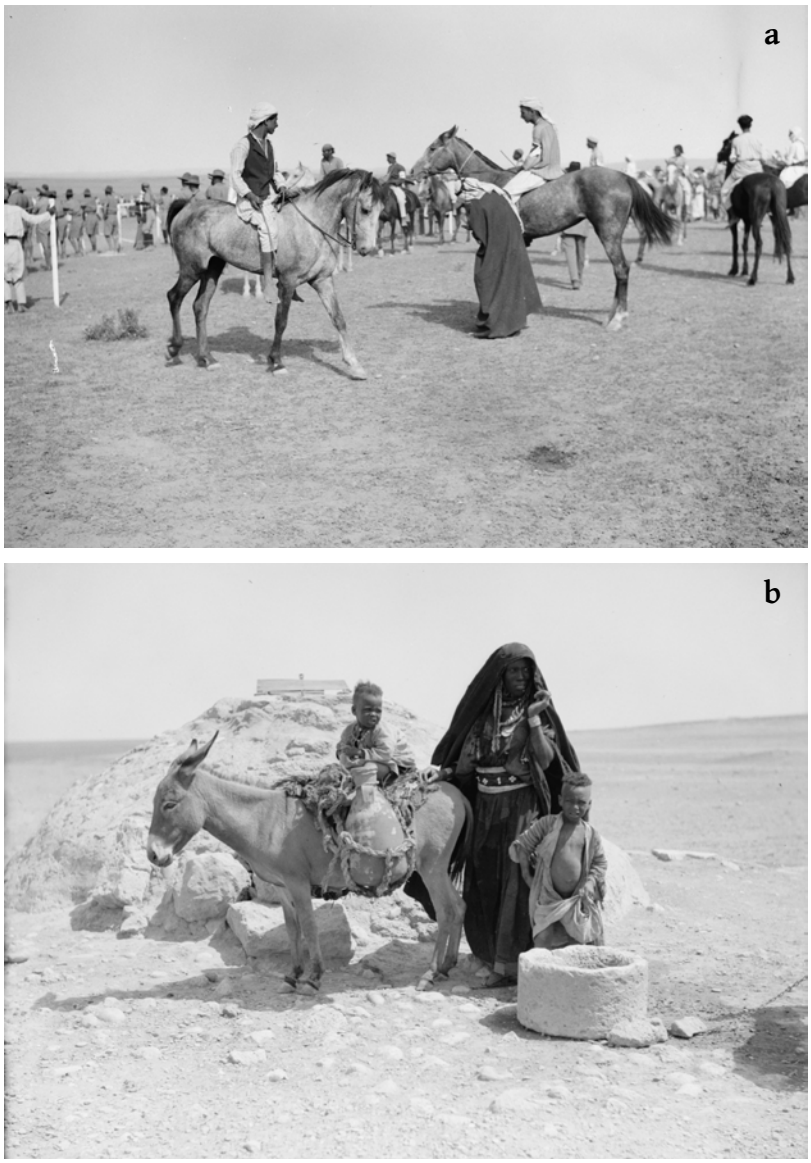


Figure 4.36. a) Arabian horses at a race meeting at Beersheba in the Negev, Israel in 1940. b) Bedouins with a donkey at Beersheba, taken between 1898 and 1946. Images from the G. Eric and Edith Matson Photograph Collection.

Figure 4.37. A pack mule in Argentina

Figure 4.38. A male wild ass being hunted by an archer. The wild ass has been carved centrally on the panel, while the hunter is located to the side. The inscription refers to *ʿr*, 'the ass' (QUR-290.41).

not suitable for riding at speed or for long periods of time; the donkey would thus not have been used as a mount in hunts or combat (Borowski 1998: 66; Clutton-Brock 1992).

Donkeys could, however, have been important for carrying loads or its most important role might have been to sire mules or other hybrids (cf. Borowski 1998: 93). There is textual evidence from Mesopotamia from as early as the 3rd millennium BC for the breeding of donkey hybrids by the Sumerians (Borowski 1998; Clutton-Brock 1992: 43). These texts indicate that hybrids were bred from wild asses and donkeys first and that, later in the 3rd millennium BC, horses were more commonly bred with donkeys to produce mules (Clutton-Brock 1992: 44). Mules appear in Assyrian tribute and booty lists after 744 BC and there is evidence that the Assyrians had a policy that allowed local populations to breed animals for future appropriation (Borowski 1998: 111). It is possible that these animals were very valuable too. For example, Hittite records note that since a mule could not reproduce, it was very expensive (Borowski 1998: 109). Since the Roman period, there is evidence that mules[9] were bred more often than hinnies[10] (Clutton-Brock 1992: 45).

As hybrids, mules and hinnies inherit the best qualities from both species and are hardy, strong, sure-footed animals with a good stamina that can go for a longer period of time without food and water (Figure 4.37). Additionally, they are fast and manoeuvrable. These hybrids would therefore have been well-suited to the desert landscape as a pack animal and as a mount. It is therefore possible that the donkey-horse hybrid played an important role in the ancient desert societies.

Equids in the rock art

The wild ass features as the object of the hunt in Safaitic rock art. In the Jebel Qurma corpus, 13 wild asses could be recognised, thereby making up a small percentage (3.5%) of the total equid figures. However, these are all the equids that are depicted as being hunted and could therefore with certainty be identified as wild (Figure 4.38, see Figure 3.12). There may be many more wild asses among the 136 'equid *unid.*'. Indeed, many of these figures resemble the identified wild asses. The six unidentifiable young equids are depicted in a herd of equids, most probably wild equids (Figure 3.6).

The Safaitic word for wild ass *ʿrd* (feminine *ʿrdt*; plural *ʾʿrd*) is not attested in the Jebel Qurma corpus (Della Puppa forthcoming). However, the word *ʿtn*, conventionally translated as 'she-ass' (cf. OCIANA),

[9] Sired by a male donkey and female horse
[10] Sired by a male horse and female donkey

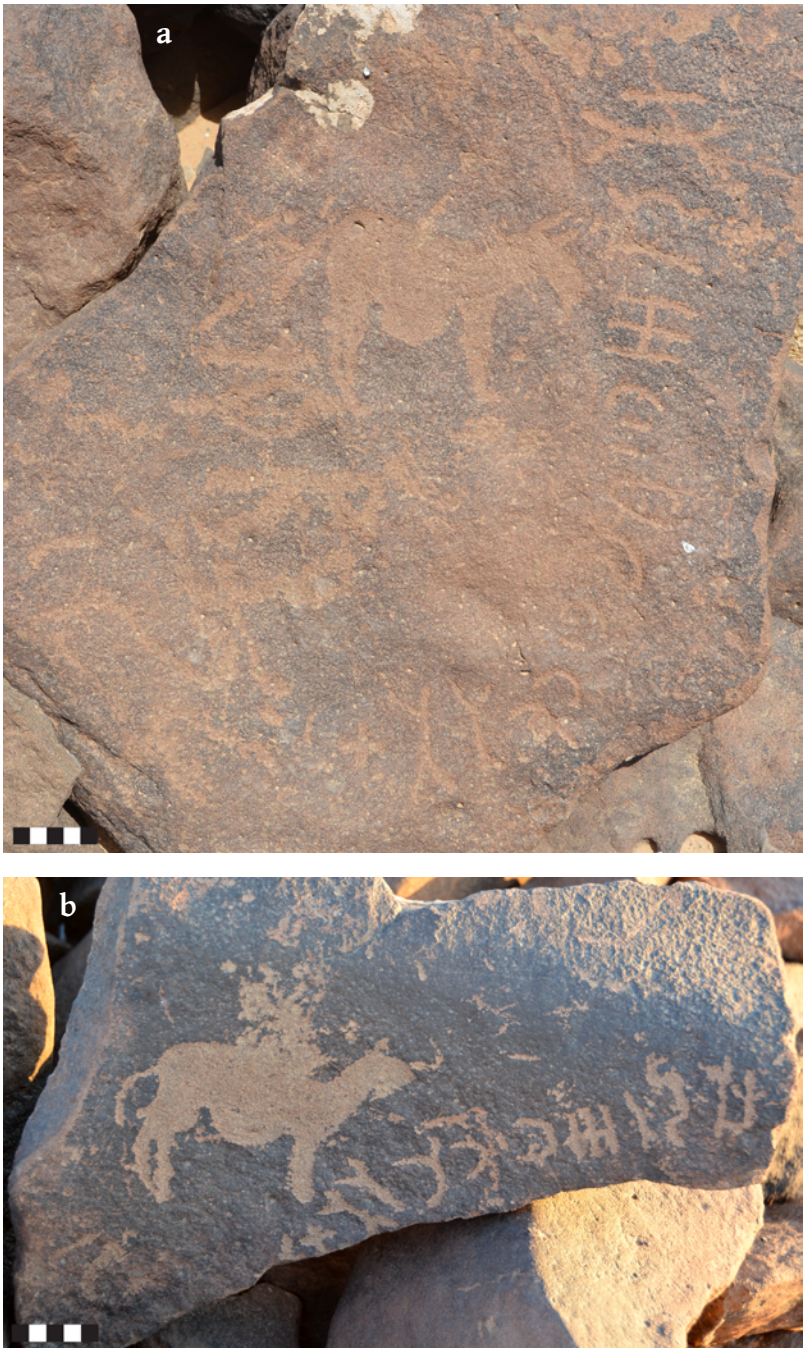


Figure 4.39. Equids with donkey-like features, most notably the round belly. Both images are associated with an inscription referring to *'tn*, which could translate as female donkey or, more generally, as female ass (a) QUR-186.63, b) QUR-938.5).

occurs eight times. Macdonald (forthcoming) has stated that this word should be translated as jenny, a female donkey, and has made good arguments for this based on the hitherto known rock art. However, the Jebel Qurma rock art provides new information on the matter. Several of the equids associated with *'tn* do resemble donkeys, having the characteristic round hanging belly of a donkey (Figure 4.39). However, several are clearly not donkeys. There are two depictions of an equid facing an archer accompanied by an inscription referring to *'tn*. The figures have the same patina and are executed in the same style so they are clearly part of the same composition (Figure 4.40). These two figures must therefore be female wild asses.

Furthermore, there is a hunting scene in which a person on an equid is hunting an oryx. The scene is associated with an inscription stating 'by [name] is *'tn*' (Figure 3.13). It is highly unlikely that donkeys would be used as a mount during a hunt, for the reasons stated above. Therefore, in this case, she-ass more likely refers to a horse-ass hybrid, such as the mule or hinny. It therefore seems that, at least in the Jebel Qurma area, *'tn* was used more generically for wild and domestic female asses, including wild asses, donkeys, and hybrids. For this reason, equids associated with the word *'tn* have been identified as female 'ass' (in Table 4.9 listed under 'ass *unid.*') (five figures), as a female 'equid with rider' if being ridden (one figure), or, if being hunted, as a female 'wild ass' (two figures).

The other word sometimes translated as wild ass (cf. OCIANA) is *'r*. Macdonald (forthcoming) argues for a different translation. He proposes that in Safaitic it may refer to the horse-donkey hybrid, the mule or hinny (Macdonald forthcoming: 15). However, Macdonald (forthcoming: 13, Figure 17b-c, Figure 17d) also presents two instances that confuse the matter: equids referred to as *'r* that are being attacked or hunted. In this regard, the later, more generic translation of 'wild or domestic ass' could be more appropriate, although Macdonald (forthcoming: 13-4) is not convinced by this. Of the 41 figures associated with the word *'r* in the Jebel Qurma corpus, most have ass-like features (Figure 4.41). Six are being ridden and could thus indeed represent mules or hinnies; here the conventional translation of 'wild ass' cannot be correct (Figure 4.42). These figures have been classified as 'equids with riders'. However, three of the equids associated with the word *'r* are being hunted and therefore must be wild asses (Figure 4.38, Figure 3.12, Figure 6.9). This would suggest that the translation of 'mule/hinny' for the word *'r* does not always hold true either. This suggests that *'r* should be translated as the more general 'ass'. For this reason, the other 32 figures have been classified as 'ass *unid.*'. One of these is a young ass.

Figure 4.40. An equid being hunted by an archer. The inscription refers to the image as *ʻtn*, 'she-ass'. The inscription and the context of a hunt indicates that this equid is a female wild ass (QUR-370.91).

Another ambiguous word is *frs*[1] (singular) or *frs*[1]*n* (dual). This term can mean either 'horse' or 'horseman' (OCIANA 2017). The Safaitic word does not give a clue as to when which translation is applicable and conventionally *frs*[1] is translated as 'horse' when only an equid is depicted and as 'horseman' when a rider is depicted (OCIANA 2017). However, it is questionable whether these inscriptions refer to the person on the horse when all other forms of signing rock art refer only to the animal, not the person on it or holding it. Moreover, it is worth noting that in many of these images, as with most equids with riders, the rider is small and simplistic and the equid is large and detailed. Compositionally, the attention is therefore on the animal (see Chapter 5). It is therefore debatable whether the word refers to the (type of) person in these cases. It is possible that in all cases this word should be translated as 'horse'. However, it is important to note that the word *frs*[1] has been attested in Safaitic inscriptions to specifically denote horse*man*, albeit rarely.[11] Therefore, it is possible that when an inscription signs the image of an equid with a rider, it is referring to a rider and that the equid could be a horse, mule/hinny, or donkey. This is a debate which merits further discussion.

The ambiguity of the word's translation means that equids with riders accompanied by an inscription with *frs*[1] cannot be assumed to represent horses and have therefore been classified as 'equids with rider'; there are 28 such figures (Figure 4.43). The other three occurrences of *frs*[1] are associated with an image of an equid without a rider; in these cases, the equid is therefore assumed to be a horse (Figure 4.44). Additionally, there are two young female horses (Figure 4.45). These were identified by the accompanying inscription, referring to them as *mhr*, filly. Both are being ridden.

As mentioned above, the appearance of the equids varies greatly. Of the equids associated with the word

Figure 4.41. A male equid referred to by the inscription (pictured right) as *ʻr*. The equid has ass-like features, including a broad head, an upright mane, and a tail where the hairs don't start at the root (QUR-956.58).

[11] E.g. 'By ʾḫ son of S²ḥl son of Tm son of Mfny son of Nʿmn and he found the trace of Ṣʿd, the horseman, who was buried, so he grieved in pain' (C 1989).

Figure 4.42. An equid with rider. The equid has ass-like features, such as a broad head, an upright mane, and long ears. Based on these features, the fact that it is being ridden, and the inscription (which refers to it as *'r*) the figure is most likely a mule or hinny (QUR-956.22).

frs[1], some have the typical horse-like features of a very slim body, pronounced hindquarters, and a small head (Figure 4.6d). However, a number of these figures have a more ass-like appearance with a straight body, large forward curving ears, and a thin, upright mane (Figure 4.43a). Similarly, one of the figures identified as 'filly' has some horse-like features, but also the forward curving ears and stalk-like tail of a hybrid or ass (Figure 4.45). The wild asses are generally depicted with rounded, somewhat downward curving muzzles and ears pointing forward. Some have quite slim bodies with pronounced hindquarters (Figure 4.38, Figure 3.12), while others have straighter or rounded bodies (Figure 4.41, Figure 6.9).

The equids associated with the word *'r* vary a lot in appearance. Those that are depicted with a rider tend to have a hybrid appearance, with some ass-like features, such as a broad neck and head with a curved nose and muzzle, a stalk-like tail, a thin, upright mane, and/or forward curving ears (Figure 4.46, Figure 4.43a). Of those without riders, some resemble horses or mules (Figure 4.47) and others have a more ass-like appearance (Figure 4.41). Some of the equids associated with the word *'tn* look very much like donkeys (Figure 4.39), while the one equid with rider has a more horse-like appearance with pronounced flanks and hindquarters, a slim middle, small head and ears, and the neck is curved as if on the bit (Figure 3.13). The mane is upright but thick and the tail is full and flows from the root.

Lastly, there are a number of equids with riders for which no identifying word is given in the associated inscription. These could therefore be horses, donkeys, or hybrids. When they are depicted in a hunting or fighting scene or the rider is carrying weaponry, they are unlikely to be donkeys. In terms of appearance, they can broadly be divided into three categories. The first is the hybrid or ass-like appearance (Figure 4.48), the second is the horse-like appearance (Figure 5.12), and the third category has no characteristic features due to the very simple appearance and lack of details (Figure

Figure 4.43. Equids with riders associated with an inscription referring to *frs*[1] a) This male equid resembles a mule/hinny more than a horse. It has a broad head and an upright mane (QUR-171.145) b) This equid is not depicted with a lot of detail, but it has some horse-like features, such as broad hindquarters and a slimmer middle. The broad neck and head is more reminiscent of a hybrid (QUR-2.369).

Figure 4.44. An equid without a rider, identified as a horse based on the associated inscription, referring to it as *frs*[1] (QUR-628.36)

Figure 4.45. A young female horse with rider. The horse has been identified based on the inscription, which refers to *mhr* (filly). However, the figure has some horse-like features, such as the slender middle in combination with broad hindquarters, and some ass-like features, such as the large, forward pointing ears and a tail where the hairs do not start at the root (QUR-290.93).

Figure 4.46. An equid with rider identified as *ʿr* in the accompanying inscription. It has a hybrid appearance and could represent a mule or hinny. The rider is fighting an archer on foot, carved outside of the cartouche (QUR-683.37).

Figure 4.47. A male ass (*ʿr*), which could be a horse, hybrid, or wild ass (QUR-529.12).

Figure 4.48. An equid with rider. It has a hybrid appearance with broad hindquarters, a slender middle, a stalk-like tail, forward curving ears, and a broad, curved muzzle. The inscription does not identify the equid (QUR-147.20)

4.49). The second category occurs the least frequently. Among all of the equids, except the wild asses, there are figures that have been depicted with patterns on them (see Chapter 5.3.3).

The variation in appearance, the ambiguity of the translation of the Safaitic terms, and the limited knowledge on the use of equids in the ancient desert societies all add to the difficulty of identifying equid species in the rock art. It is to be hoped that with further research on this topic, it will be possible to distinguish more accurately between horses, donkeys, hybrids, and wild asses in the depictions.

4.4.5. Carnivorans

Introduction

Carnivora is an order of mammals of which the members are referred to as carnivorans.[12] It consists of a number of families, including the Felidae and Canidae. In total,

Table 4.10. The number and percentage of the different types of carnivoran motifs.

Motif	Number of figures	% of carnivoran figures
Dog	20	12.5%
Canid unid.	41	25.6%
Lion	43	26.9%
Felid unid.	7	4.4%
Carnivoran unid.	49	30.6%
Total	**160**	**100.0%**

[12] As opposed to *carnivore* which is a meat-eating animal

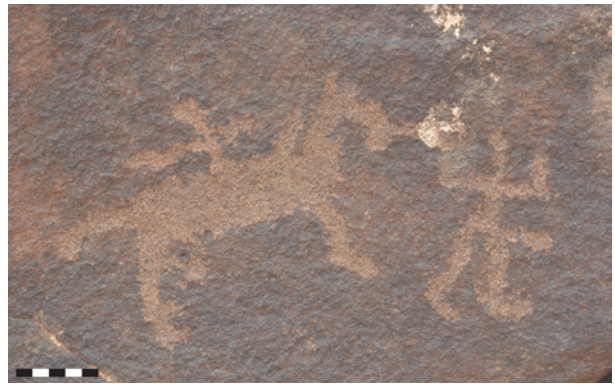


Figure 4.49. An equid with rider being led by another person. The equid does not have any distinguishing features (QUR-2.230).

160 figures were identified as carnivorans (Table 4.10). Among the carnivorans, only two distinct species could be identified: dogs and lions. These animals are mentioned in Safaitic inscriptions and also have specific features that help to distinguish them from other species.

Dogs and canids

The Safaitic word for dog is *klb* (singular) or *ʿklb* (plural). The former is not attested in the Jebel Qurma material but is found in Safaitic inscriptions from other areas. The word has rarely been attested in inscriptions that sign rock art; it almost exclusively occurs in inscriptions with narratives. For example, in a text from the Cairn of Hani, the author says 'By ʾmyt son of ʾkl of the lineage of Ḥly and he was devastated by grief on account of his dog that had strayed, so, O Lt, may he return safely'.[13] Similarly, an inscription from another site reads 'By S²ddt, at this [look-out point], and a wolf [carried off] his dog.'[14] No images are associated with either of these inscriptions. Yet in Jebel Qurma, the word *ʿklb* is attested on a panel with a carving of five dogs and an inscription that refers to 'the dogs'[15] (Figure 4.50). This is to my knowledge one of only two depictions in Safaitic rock art in which the dog is signed in the inscription. It is the only one with a clear depiction of dogs.[16] For this reason, this site was affectionately nicknamed 'the Cairn of the Dogs' by our team. There is one other inscription that refers to 'the dog', but there is no carving of a dog associated with it. Instead, it occurs on a panel with the depiction of an archer attacking a lion (Figure 4.55b). This image is also signed 'the lion' by a different author. One other word for (female) dog is attested in the Jebel Qurma corpus. In a narrative inscription, the author states that he camped and that the lion attacked and

[13] HCH 131
[14] WH 1516
[15] QUR-956.20.1
[16] The other is AbaNS 1031, but the image looks more like a lion than a dog.

Figure 4.50. a) The panel has been carved with five dogs and an inscription in which the author states by him 'are the dogs'. It is one of the few depictions of dogs on their own in Safaitic rock art and one of only two in which the dogs are referred to in the inscription. (QUR-956.20). b) Tracing of the dogs. The dashed line represents elements that are not visible due to weathering.

ate his bitch, and asks for security.[17] There is no image accompanying the inscription.

Zoomorphic figures with similar features to these dogs and depicted in hunting scenes with humans have been identified as dogs as well, making a total of 20 dogs in the Jebel Qurma material (Figure 4.51, Figure 4.30, Figure 6.5). Dogs are also depicted in Near Eastern hunting scenes in the roughly contemporary Hismaic rock art from southern Jordan (Corbett 2010) and the prehistoric rock art from Shuwaymis and Jubbah, Saudi Arabia (Guagnin *et al.* 2018). Corbett (2010: 160) has interpreted the dogs portrayed in the Hismaic hunting scenes as desert saluki (*salūqī*) (Figure 4.52a). This breed is a gazehound known from the Middle East and possibly first described in Arabic literature from the 8th century (Allen and Smith 1975: 121). The saluki is a slender hunting dog with long ears and a

Figure 4.51. A hunting scene depicting four archers and a dog hunting three oryx. There are two inscriptions, written by two different authors, referring to dst, 'the oryx', and one inscription referring to 'the image' (QUR-64.213)

[17] QUR-7.30.1

Figure 4.52. a) The saluki gazehound. Photo by Elisabetta Bellomi. b) The Canaan dog. Photo by Giora Sluzky, distributed under the CC BY-SA 3.0 license.

long, curling tail (Allen and Smith 1975: 120). The dogs depicted in the Safaitic rock art have similar features, most notably the curling tail, and may indeed represent this type of dog. They do not have the characteristic ears of a saluki though; the dogs in the rock art have pointed ears. Furthermore, it is not known whether this dog breed already existed in this period. The curled tail and pointed ears give them a similar appearance to that of the dogs depicted in the Saudi Arabian rock art (cf. Guagnin *et al.* 2018). It has been suggested that these dogs resemble the modern Canaan dog (Figure 4.52b), but again, the ancestry of this breed is not known (Guagnin *et al.* 2018). The Safaitic dog depictions may therefore represent any breed of dog suitable for hunting in a desert environment.

Dogs are mentioned often in pre-Islamic poetry as helpers in the hunt, the 'faithful accomplices' to the huntsmen (Musil 1927, G. Smith 1990: 167). Centuries later, they are an object of much interest to European travellers who also note their use in hunts by desert groups and the affection between these peoples and their dogs (Musil 1927: 133-4). The depiction of dogs in Safaitic rock art, especially in hunting scenes, thus appears to be an early representation of their use in desert societies.

An additional 41 figures, ca. 26% of the carnivoran figures, could be recognised as canids based on their body shape and pointed muzzles. However, they could not be identified as dogs, either because their features were not detailed enough or because they are depicted on their own or in a hunting scene without humans (Figure 4.53). These canids could represent domestic dogs or wild wolves, jackals, and/or foxes, all of which occur in the region. The canids in the hunting scenes are most likely not foxes considering the large prey they are hunting. Both wolves and jackals are native to the *badia* and are still present there in limited numbers. Wolf bones are known from Palaeolithic and Neolithic sites in Jordan and wolves have been depicted in Umayyad mosaics (Hatough-Bouran and Disi 1991). There have been recent sightings of the subspecies the Arabian wolf (*Canis lupus arabs*) in the eastern *badia* (Bunaian *et al.* 2001). The Syrian jackal (*Canis aurus syriaca*) is known from bone assemblages from Upper Epipalaeolithic and Natufian contexts in Jordan and its presence in Jordan was noted by 19th century scholars (Hatough-Bouran and Disi 1991) and it has been sighted in the last few decades in the nearby Hazim area (Bunaian *et al.* 2001). The jackal is slightly smaller than the wolf, with a short snout and tail (Bunaian *et al.* 2001: 21).

Wolves are mentioned in Safaitic inscriptions, referred to by the word *h-dʾb*. They are most commonly mentioned in inscriptions with a narrative component. These inscriptions always talk of the wolf as a danger or in negative terms, such as the aforementioned inscription in which they author states that a wolf carried off his dog.[18] Therefore, we may expect to find them in the rock art, much like the lions (see below). However, there are only two possible signed depictions of wolves in the Jebel Qurma corpus. One inscription states 'By (Hdr) is the wolf, son of...' and is accompanied by two figures.[19] One of the figures is barely visible due to lichen and the other is also partly covered by lichen but has canine features (Figure 4.54a). It is not clear to which figure the inscription refers. The other inscription is poorly legible but may refer to *h-dʾb*.[20] The figure depicted with the inscription also has a

[18] WH 1516; other examples are LP 732 and C 4803
[19] QUR-186.12.1
[20] QUR-239.1.1

Figure 4.53. Two canids hunting a flock of ostriches. It is unclear if they are meant to represent domestic or wild canids. The inscription refers to 'the image' (QUR2.554)

canine appearance, but is larger and stockier in build than the aforementioned (Figure 4.54b). The ambiguous nature of these inscriptions and the associated petroglyphs means it is difficult to determine whether they are indeed meant to represent wolves and to determine what the distinguishing features of wolves are in Safaitic rock art. To my knowledge, there are no other known signed images of wolves in Safaitic rock art to clarify the matter. Based on the epigraphic evidence, wolves were clearly a topic of concern to the Safaitic authors, but their manifestation in the engravings appears to have been limited mainly to the texts.

Lions and felids

Lions figures occur 43 times in the Jebel Qurma rock art. They make up only 1.3 % of the zoomorphic motifs, but they account for more than a quarter of the carnivoran motifs. The lion frequents both the pictorial and the textual engravings. In the Jebel Qurma corpus, eight of the lion images are associated with an

Figure 4.54. a) The inscription states 'By {Ḥḏr} is the wolf, son of...'. It is unclear which of the two figures it refers to and both are poorly visible due to lichen growth (QUR-186.12). The inscription may refer to 'the wolf'. The zoomorphic figure has canine features and is stockier than the dogs. It also appears to have its mouth open. This may represent a wolf (QUR-239.1).

Figure 4.55. Examples of depictions of lions in the rock art. All three are associated with an inscription referring to 'the lion'. Lions are often depicted with a large front body, an open mouth, a long tail that curls at the end, and slightly bent legs as if in pouncing position ((a) QUR-162.2, (b) The inscription at the bottom of the panel refers to 'the lion'. The inscription at the top refers to 'the dog' QUR-2.375, (c) QUR-933.1).

inscription referring to 'the lion' (*s¹d*) (Figure 4.55). In one case, the image is associated with an inscription that most probably mentions 'the lions' (*s¹dn*) (Figure 4.56). All of the signed depictions have similar distinctive features. The figures are characterised by a large, often raised front body and a smaller, lower hind body, a long, often curled tail, and forward bending legs and paws as if in a pouncing position. Their ears are often depicted as small and round and they are sometimes portrayed with an open mouth as if roaring. These distinctive features make it possible to identify other lion figures in the rock art not signed directly by the author (e.g. Figure 1.6).

The Asiatic lion (*Panthera leo leo*) was once widely spread throughout a large part of the Middle East and Central Asia (Figure 4.57) (Antunes *et al.* 2008; Barnett *et al.* 2006; Barnett *et al.* 2014). Lion bones are known from Early Roman and Ayyūbid/Mamlūk deposits at Tell Hesban, situated ca. 100 km east of Azraq (Boessneck and Von den Driesch 1978). Evidence of their presence in the region is mostly represented by mosaics and poetry from the Umayyad period (cf. Behrens-Abouseif 1997). They are rarely mentioned by 19th century travellers[21] and never by 20th century travellers, probably because lions were already largely extinct in the Middle East by the 19th century.

Their representation in the rock art appears to lay emphasis on their threatening appearance, being depicted as large, in pouncing position, and sometimes roaring. Similarly, lions feature in narrative texts, always in negative terms. In the Jebel Qurma corpus, there are three inscriptions that mention lions in a narrative and without associated images, all found on one panel at the site QUR-7. Two say that the author camped and drove away a lion.[22] The third is the aforementioned inscription that states that the author camped and a lion attacked and ate his bitch. Narrative texts from other areas in the *harra* likewise mention lions as a threat; for example, 'O Rḍw, grant retribution to Qdm against the lion of his camels (i.e. who has killed his camel(s))'.[23] Like the wolf, the lion was thus described in negative terms by the Safaitic authors and clearly perceived as a danger, to both humans and domestic animals. However, unlike the wolf, the lion appears relatively frequently in signed depictions in the rock art.

There are a further seven figures that have feline features, but not the distinct features of a lion (Figure 4.21a). They may represent lions or they may represent any of the other felids that probably existed in the wider area at the time. Two subspecies

[21] For an exception, see Blunt 1879, 77.
[22] QUR-7.30.3 and QUR-7.30.4
[23] LP 319

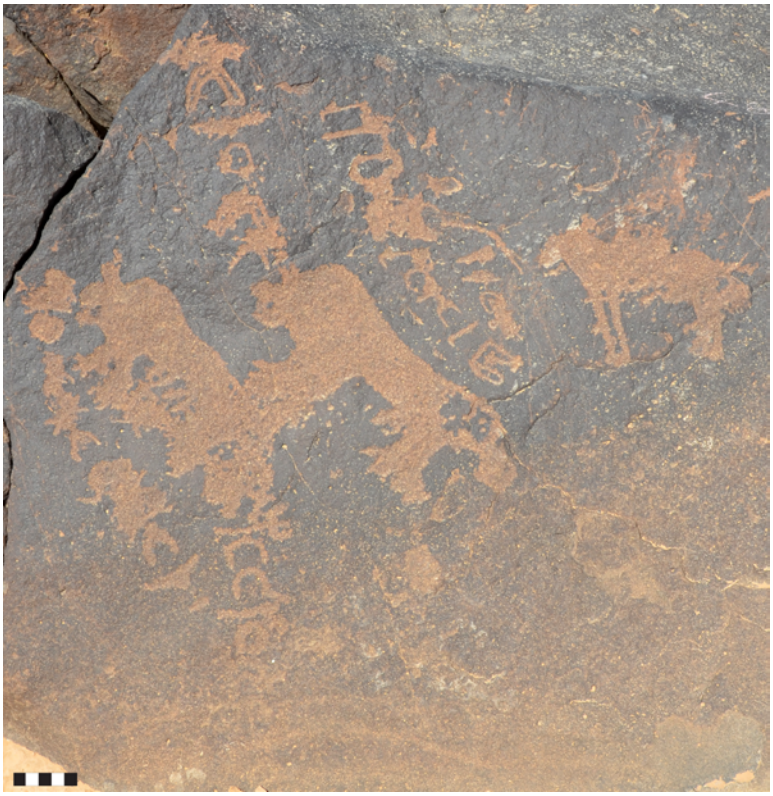


Figure 4.56. Two lions accompanied by an inscription that probably refers to 'the two lions'. The text is poorly legible due to effacing. The legs of the lions have also been effaced (QUR-2.487).

of the wild cat (*Felis silvestris*) still occur in the region (Yamaguchi *et al.* 2015) and the sand cat (*Felis margarita*) is native to the Arabian Peninsula and still exists there, although sightings are rare (Bunaian *et al.* 2001; Sliwa *et al.* 2016). Both animals are also mentioned in the travel journal of Musil (1928). The cheetah (*Acinonyx jubatus*) was once spread out across Asia, including the Arabian Peninsula, but now only the Asiatic cheetah (*A. j. venaticus*) still survives in Iran, in 'critically endangered' state (Durant *et al.* 2015). The cheetah does not feature in pre-Islamic poetry, but it is used as a hunting aide in poems from the Umayyad and Abbasid periods (G. Smith 1990: 169). Several subspecies of the leopard (*Panthera pardus*) also once occurred throughout much of Arabia (Spalton and Al Hikmani 2006) and were reported as more common than the cheetah in many areas of Jordan (Qarqaz and Baker 2006).

We might expect any of these felids to be depicted in the rock art as well. Additionally, both of the two larger felids, the leopard and the cheetah, would have posed a considerable threat to livestock and people, just like lions, wolves, and hyenas, so it is surprising they are not depicted clearly in the rock art or mentioned in the inscriptions.

Carnivorans

There are 47 figures that could not be identified further than 'carnivoran'. These may represent any of the abovementioned species, but there is one species not yet discussed that may also be depicted: the hyena. Populations of the striped hyena (*Hyaena hyaena*) are distributed across the Middle East and they are found throughout Jordan in various habitats (Qarqaz *et al.* 2004) (Figure 4.58). Little is known about its past presence and distribution in the area (cf. Hatough-Bouran and Disi 1991), but it appears that it was more common in the eastern mountains of Arabia (Qarqaz *et*

Figure 4.57. The Asiatic lion (*Panthera leo leo*). Photo by Bernard Gagnon, distributed under the CC BY-SA 3.0 license.

Figure 4.58. The striped hyena (*Hyaena hyaena*). Photo by Department of Wildlife Sciences, Aligarh Muslim University, India, distributed under the CC BY-SA 3.0 license

al. 2004: 8). Musil (1928: 20) describes it as living in large numbers on the at-Tawil range (a mountain range to the southwest of al-Jawf, Saudi Arabia). The hyena was and still is persecuted widely by locals in the Middle East due to superstitions about it (Boneh 1987; Bunaian *et al.* 2001; Musil 1928).

The hyena's physical characteristics are very distinctive due to its descending body, the stripes on its body, and the 'spine' of hair across its back. No figures in the Jebel Qurma rock art have all of these distinctive features and could be identified as a hyena with certainty. There are two carnivoran figures that are depicted with stripes (Figure 4.59). One has the characteristic body of a lion and the other does not have a distinctive body shape. It is therefore unclear if they are meant to represent hyenas. Other animals are depicted with stripes or other patterns on their body that do not represent coat patterns so these stripes might instead be 'decoration' of the rock art figure (see Chapter 5). One other figure might represent a hyena. It is depicted in a scene with a lion facing an anthropomorph holding a bow and arrow (Figure 1.6). The lion has the characteristic features of a lion: a small hind body, a long curled tail, and a larger neck/head probably representing the mane. The second zoomorphic figure has a slightly different body shape. It has a curved, descending back, which might represent the sloping body of the striped hyena. However, as of yet, no hyenas can positively be identified in the Jebel Qurma material. There is only one known possible signed image of a hyena in Safaitic rock art from a site in Syria.[24] However, the translation is uncertain and there is only a very poor tracing of the image; it is barely recognisable as a zoomorph.

4.4.6. Ostriches

There are 342 figures that represent ostriches, accounting for ca. 10% of all the zoomorphic figures.

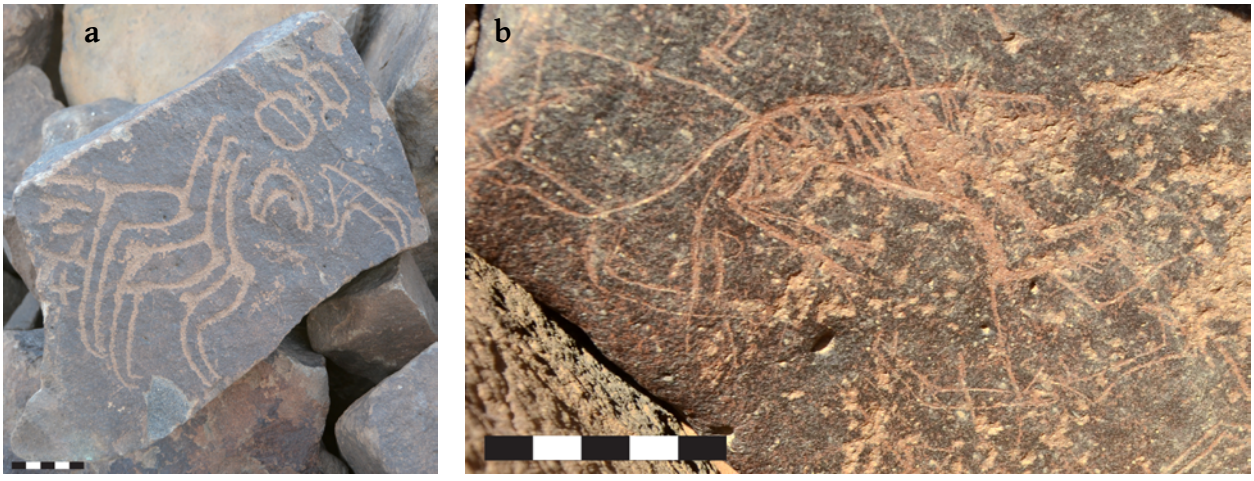


Figure 4.59. a) A carnivoran with a stripe pattern hunts three ostriches. The stripes on the carnivoran might be meant to represent the stripes of the striped hyena, but they could also be 'decoration' of the rock art figure. The inscription refers to 'the ostriches' (QUR-186.160). b) The stripes on this carnivoran may indicate that it is a striped hyena, but the figure's body shape resembles that of a lion (QUR-64.6).

[24] C 2727

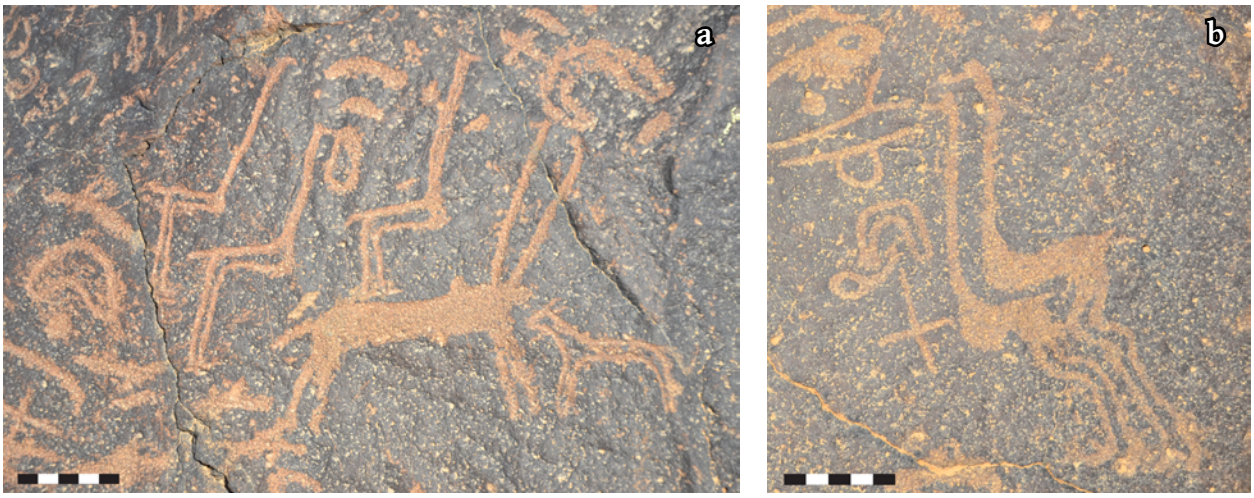


Figure 4.60. Examples of ostrich figures, of which most are stylised and lack detail. a) A flock of three ostriches and an oryx being hunted by a canid. The ostriches are highly stylised (QUR-2.352). b) These two ostriches are depicted with slightly more shape, but lack any detail. The animals are always easily recognisable though due to their distinctive shape (QUR-148.74).

Figure 4.61. a) A flock of seven ostriches is being pursued by a canid. The ostrich at the front is depicted in more detail than most ostrich figures; the feathers on its back have been individually incised. The inscription states 'By Bgt son of Gʾwn son of Zdh son of ʾsˡ and he lay in wait for the young ostriches' (QUR-839.42). b) Tracing of the scene (the inscription is excluded). The dash lines represent parts that are not visible due to effacement.

Although bovids and equids are more frequent as a family, the ostrich is the second most common species after the dromedary camel (Table 4.3). They are usually depicted in flocks, partly accounting for their large numbers, and often in hunting scenes. They are the only bird depicted in the Jebel Qurma rock art and, to my knowledge, Safaitic rock art in general.

Ostriches are easily recognisable due to their distinctive shape. Many of them are highly stylised, consisting of the characteristic long neck and legs and a somewhat rounded body; the head and feet are rarely depicted in detail (Figure 4.59a, Figure 4.60). Some have been more elaborately carved of which the finest example is an ostrich for which the feathers have been depicted (Figure 4.61). This ostrich is part of a flock pursued by a canid and the image is accompanied by an inscription where the author says 'he lay in wait for the young ostriches'.[25]

Besides this inscription, the word for 'young ostriches' (*r'l*) is attested three times in the Jebel Qurma corpus. In the other three instances, the inscription only signs the image, i.e. stating 'By [name] are the young ostriches'. In all four attestations of the word, there is an associated image of four or more ostriches. Additionally, 'the ostriches' (*n'm*) is found three times and one possible time in the Jebel Qurma inscriptions.

[25] QUR-839.42.1

Figure 4.62. A flock of five ostriches face a canid. The inscription refers to 'the young ostriches' (QUR-171.97).

All four of these inscriptions accompany an image of a group of ostriches (Figure 4.62, Figure 4.59a).

The ostrich that inhabited Arabia in the past was the Arabian ostrich or Syrian ostrich (*Struthio camelus syriacus*), a subspecies of the commonly known ostrich (Figure 4.63). Its existence in the area is mostly gleaned from accounts of western travellers from the past two centuries and the evidence of ostrich eggshells from many archaeological sites from a wide range of periods (Potts 2001). Additionally, contrarily to what is claimed by Potts (2001: 182), ostrich bones are known from one archaeological context, the aforementioned Tell Hesban (Boessneck and Von den Driesch 1978). Ostrich eggshells have also been found at several sites in the Jebel Qurma region. The Arabian ostrich is now extinct; the last ostrich is believed to have been killed in the early 1940s in Bahrain (Greenway 1967). Ostriches also feature in pre-Islamic poetry, in which the poet frequently compares the she-camel to the ostrich (S. Stetkevych 1993). The ostrich is sometimes the object of the hunt in these poems, although more rarely than the oryx or wild ass (J. Stetkevych 1999).

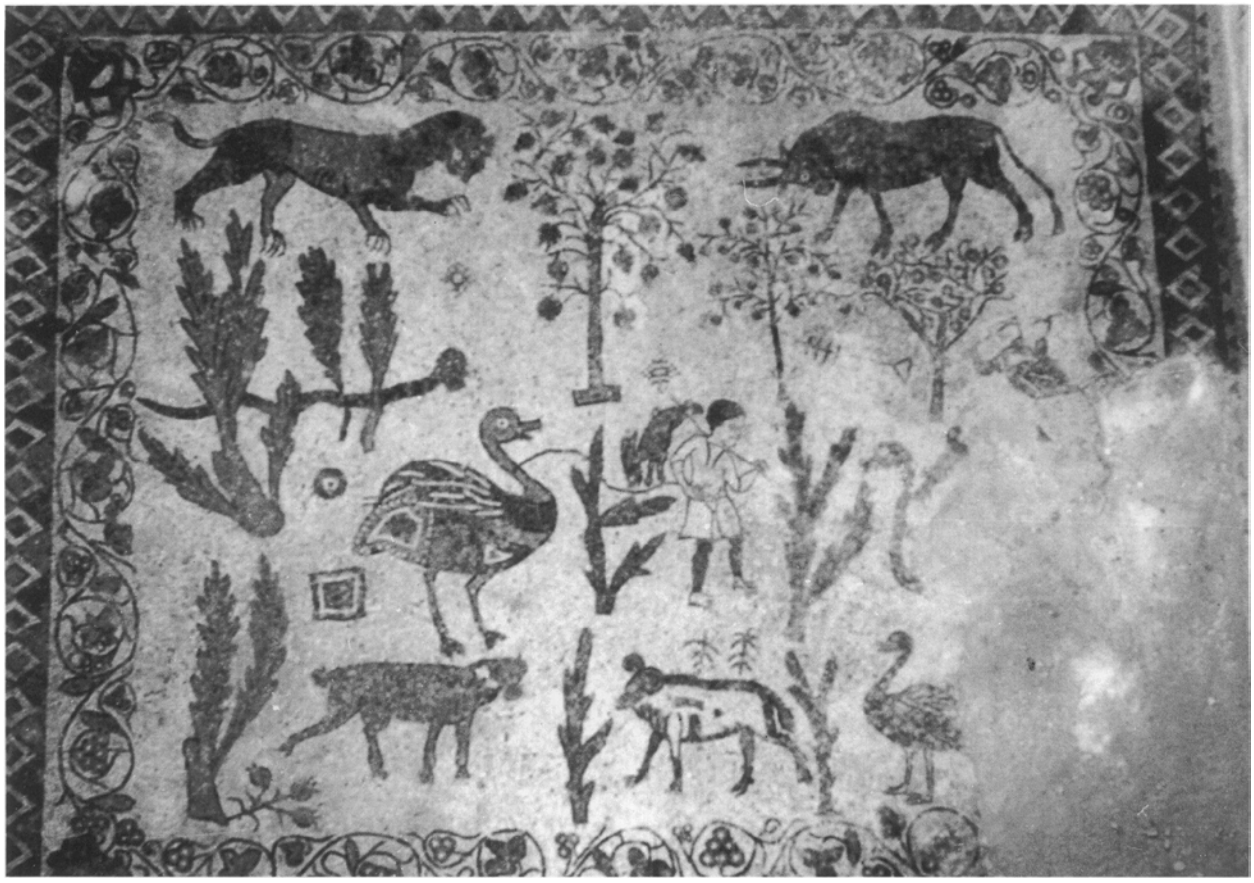


Figure 4.63. Ostrich depicted in a floor mosaic from the Ummayad period at castle Qasr al-Hallabat, Jordan. Image from Bisheh 1993, fig. 8.

4.5. Abstract

4.5.1. Introduction

Abstract figures make up just under 14% of the rock art corpus. Nine types of motifs could be identified: 'circles', 'set of dots', 'line and set of dots', 'set of lines', 'kites', 'rectangles', 'rayed circles', 'star shapes', and 'wheel' (Table 4.11). A total of 78 figures are figures that are not recognisable as any recurring motif.

4.5.2. Circles

Circles are sometimes one individual circle and sometimes two or more adjacent or intersecting circles (Figure 4.64). They make up only a small percentage of the abstract figures. A few of the circle figures are noteworthy. Five of them were found at the site QUR-20, where several large enclosures were found (see Chapter 6.3.4) (Figure 4.64a and b). It is possible that

Table 4.11. The number and percentage of the different types of abstract motifs.

Motif	Number of figures	% of abstract figures
Circles	21	3.4%
Kite	2	0.3%
Line and set of dots	33	5.3%
Rectangles	56	9.0%
Rayed circle	46	7.4%
Sets of dots	194	31.0%
Set of lines	184	29.4%
Star shape	7	1.1%
Wheel	4	0.6%
Unknown	78	12.5%
Total	**625**	**100.0%**

Figure 4.64. Examples of circle figures. a) Three adjoining circles. They may represent the enclosures found at the same site (QUR-20.36) b) Another circle figure found at the same enclosure site (QUR-20.34) c) A boulder carved with two separate circles, two interlocking circles and three small circles inside of one of them (QUR-439.50) d) An enigmatic figure comprising one large circle surrounded by seven smaller circles and two to the side (QUR-64.304).

Figure 4.65. a) A panel with sets of seven dots: one carved in a row and one in cluster (QUR171.89). b) This composition consists of an inscription, a dromedary camel, a set of seven dots, and an anthropomorph with seven dots (QUR-1016.37).

these circles are meant to depict the enclosures located here, similar to the depiction of the desert kite structures (see below). Additionally, one circle motif bears some resemblance to the 'sets of dots' motif (see below). It is composed of seven circles surrounding one larger circle (Figure 4.64d). All of the circles are very neatly hammered and approximately of equal size. They form a rather enigmatic figure, of which the interpretation is unclear.

4.5.3. Set of dots

The set of dots motif is similar to circles in shape. However, dots are recognised as a separate motif because dots are much smaller, they always occur in a set of several adjacent dots, and they appear to be intrinsically linked to the Safaitic inscriptions, unlike the circles (fig 4.65). The dots are usually filled in, appearing thus as a 'dot', but some have been made in outline (Figure 4.66a). Sets of dots are the most common abstract motif, making up a third of all abstract figures. They almost always occur in association with a Safaitic inscription. More than 60% of these figures consist of a set of seven dots (Figure 4.67). There are also a few cases where the number of dots is a multiple of seven: 14, 28, and even one set with 70 dots. For some carvings, it is not possible to identify the exact number of dots in a set due to weathering, effacing, superimposition, or damage on the rock (the 'unid.').

The dots in the set are most commonly depicted in a row (Figure 4.68). However, some cluster together or form a circle. One of the latter is interesting because the set consists of seven dots in a circle surrounding a rayed circle (Figure 4.66b). For two figures the shape of the set is labelled as 'other' because it was unclear what category to place them in; they are quite enigmatic. At the site QUR-64, 14 outlined dots are carved in an extended oblong shape

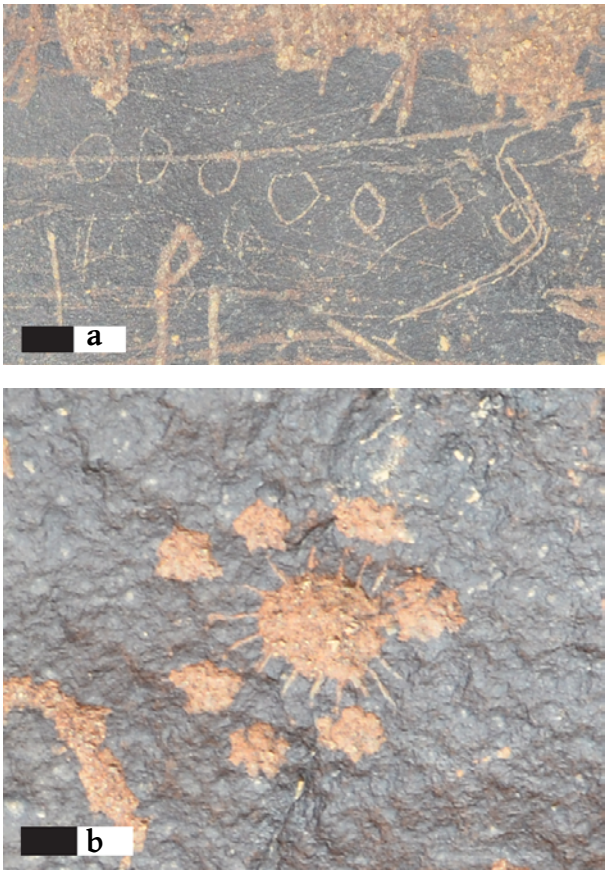


Figure 4.66. a) A set of seven dots in a row made in outline (scale bar = 2 cm) (QUR-294.116). b) A set of seven filled in dots. They form a circle around a rayed circle (scale bar = 2 cm) (QUR-695.1).

(Figure 4.69a). At QUR-788, no less than 70 dots are depicted in a long, curving row, forming an enigmatic shape (Figure 4.69b). For some of the figures, the shape of the set of dots could not be determined due to weathering, effacing, or superimposition ('unid.').

This motif is clearly closely related to the set of lines motif and the line and set of dots, described below. Additionally, as mentioned earlier, the anthropomorphic motif with a set of dots underneath it is probably also a variation on this type of motif. It is also noteworthy that the cartouche that is often carved around the Safaitic inscriptions is sometimes depicted as dots instead of the more common thin line (Figure 4.70). They also bear a very close resemblance to the set of dots. In some instances, the sets of seven dots are depicted right alongside an inscription, almost forming a cartouche, which shows that these types of engravings must be seen as related to one another. These abstract motifs are also all inextricably linked to the inscriptions themselves.

4.5.4. Line and set of dots

Another variation on the above-described motif is the line and set of dots (Figure 4.71). It is commonly one line with seven dots in a cluster underneath it (Figure 4.72a, Figure 4.67, Figure 4.68). There are two exceptions: one where it is a curved, u-shaped line with seven dots and one where it is a forked line with seven dots (Figure 4.72b and c). This motif occurs

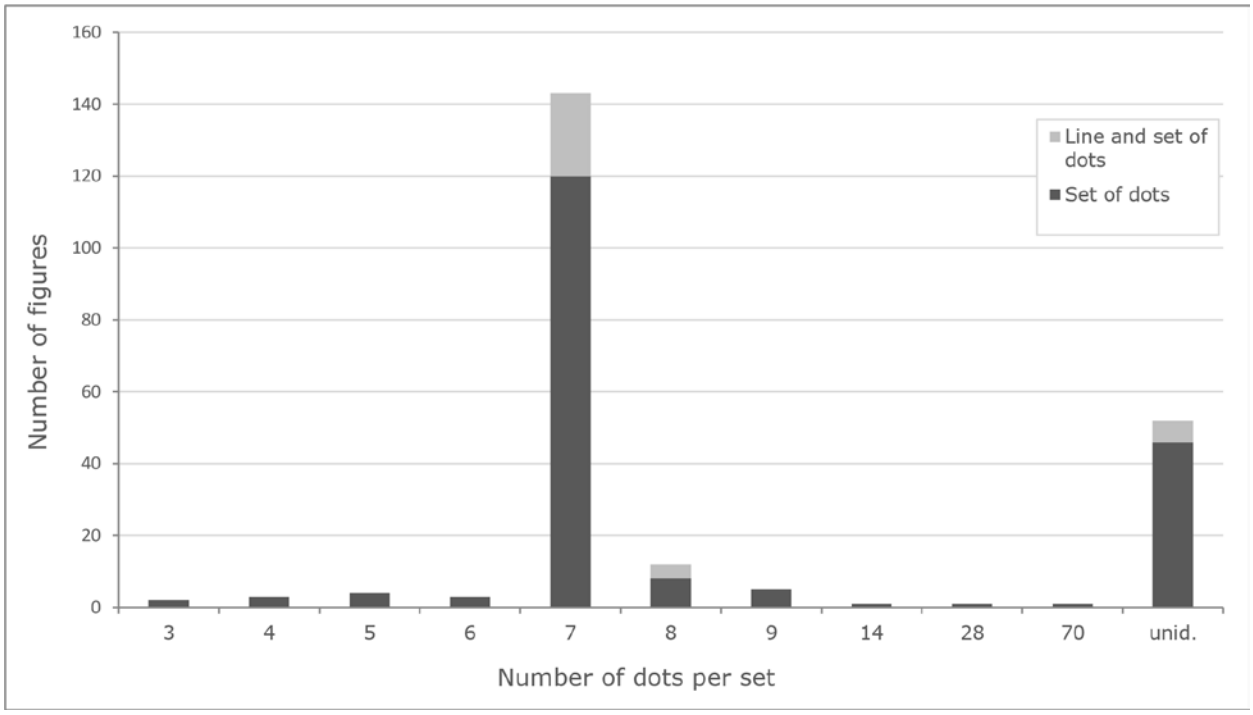


Figure 4.67. Stacked bar graph showing the number of 'set of dots' and 'line and set of dots' figures according to the number of dots in the set.

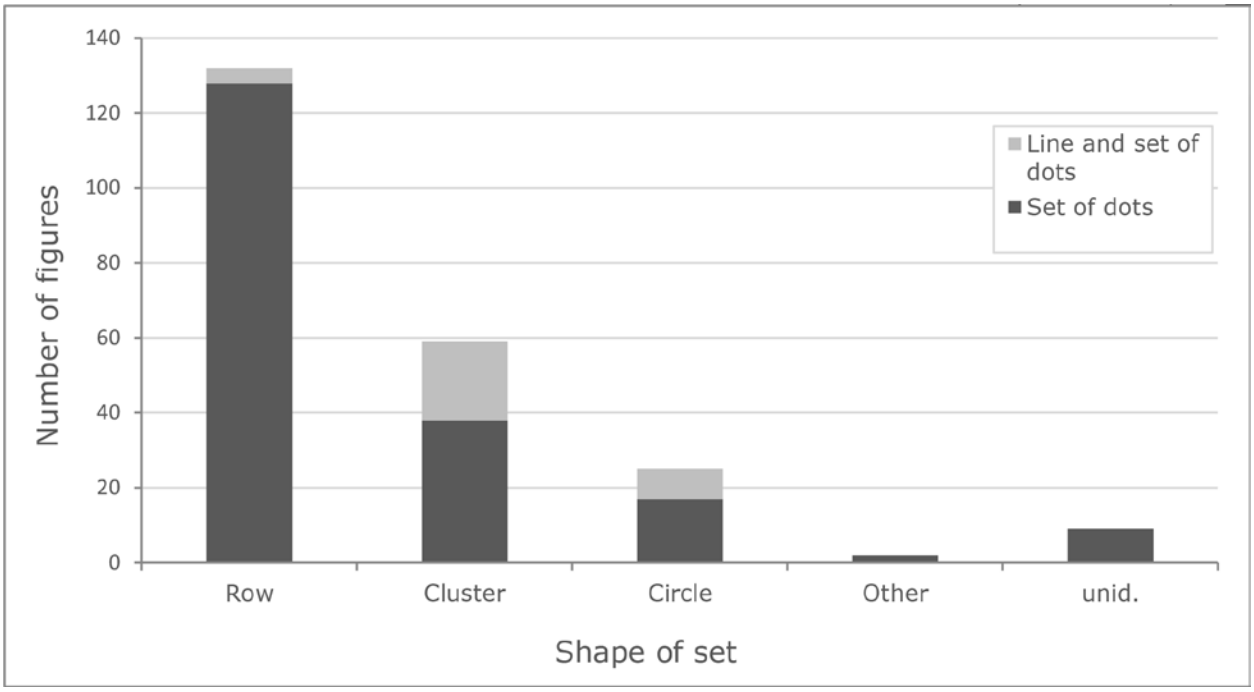


Figure 4.68. Stacked bar graph showing the number of 'set of dots' and 'line and set of dots' figures according to the shape of the set of dots.

Figure 4.69. a) Fourteen large dots that together form an oblong shape (QUR-64.70) b) Seventy dots in a long row, forming an enigmatic shape (QUR-788.17).

only 33 times in the corpus, always in association with an inscription. It is very similar to the anthropomorph with dots. It is possible that the line with dots is a stylised version of this motif and/or that the line is meant to represent an anthropomorph.

Figure 4.70. This inscription and rayed circle have a cartouche that is made up of dots. The cartouche resembles the set of dots figure (QUR-733.8).

Figure 4.71. A panel with four 'line and set of dots' figures. Each figure has seven dots underneath the line (QUR-2.361).

4.5.5. Set of lines

The set of lines motif occurs 184 times in the Jebel Qurma material. This motif consists of a number of lines parallel to one another (Figure 4.73). The majority of these figures consist of a set of seven lines, but other quantities of lines also occur (Figure 4.74). For some carvings, it is not possible to identify the exact number of lines in a set due to weathering, effacing, superimposition, or damage on the rock (the 'unid.'). In total, 161 of the set of lines figures are 'regular', i.e. just consisting of parallel lines. However, a small number are crossed by a horizontal line or encircled by a line (Figure 4.75). The latter motifs look like lines with a cartouche. Like the abovementioned motifs, the set of lines also almost always occurs with Safaitic inscription.

The frequent reoccurrence of the number seven and its multiples in the form of sets of seven dots or seven lines is an interesting phenomenon. The enigmatic motifs have triggered much speculation about their meaning. Several scholars have suggested that the 'symbol of seven' is an apotropaic one, designed to protect the image, the text, or the author himself (Clark 1980; Macdonald 2012; Winnett and Harding 1978). Various explanations for the symbol of seven have been given, including their representing the Seven Planets (Winnett and Harding 1978: 26), the seven Mesopotamian divinities (Oxtoby 1968: 27), or the seven stones used to predict fate (Al-Manaser 2008: 51; Oxtoby 1968: 28). Whatever they are meant to the represent, the frequent occurrence of the dots and lines in sets of seven suggests that this was a significant number.

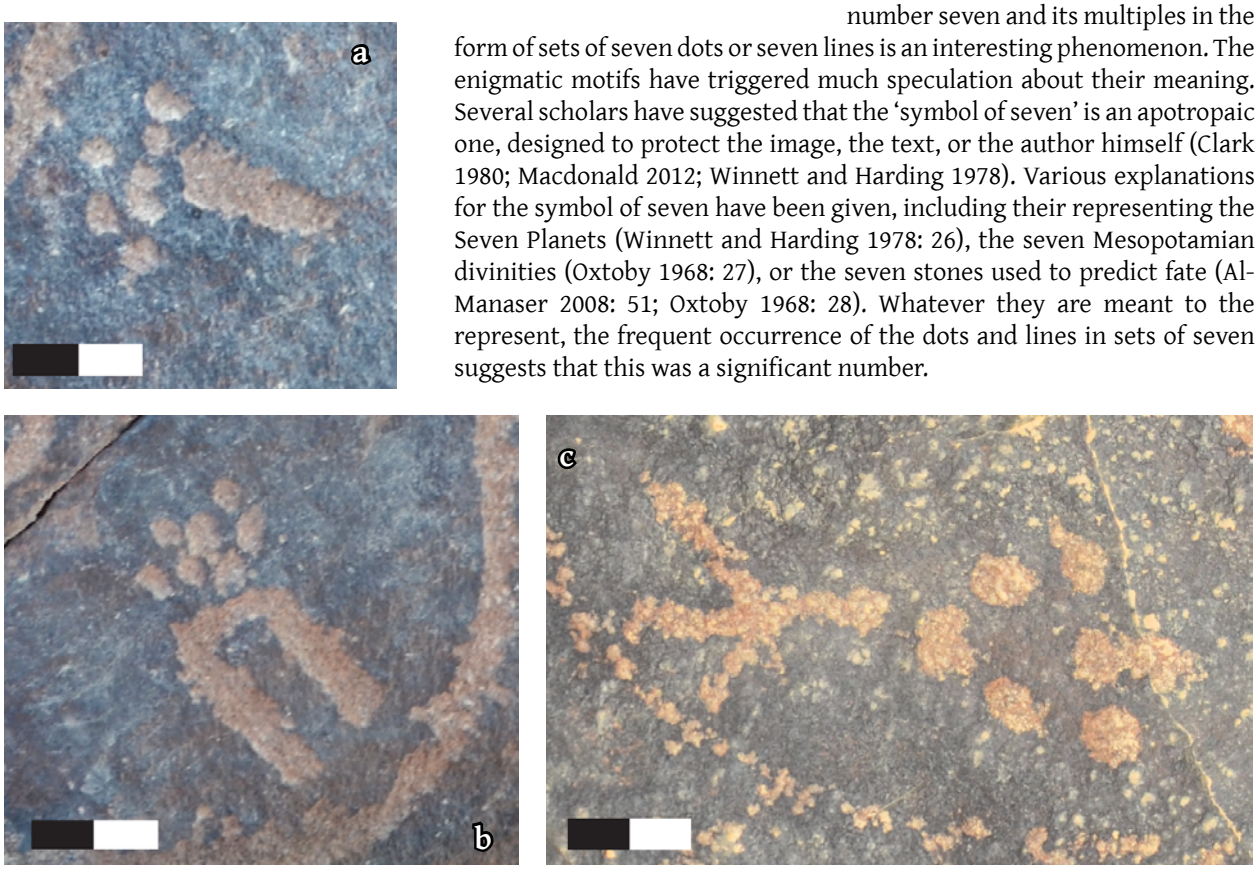


Figure 4.72. Examples of the 'line and set of dots' motif (scale bar = 2 cm). a) The most common form of the 'line and set of dots' motif: a single line with seven dots clustered at one end (QUR-25.8) b) A u-shaped line with seven dots above it. This figure occurs on the same panel as the figure in (a) (QUR-25.8). c) A forked line with what appears to be eight dots (QUR-294.42).

Figure 4.73. a) Seven parallel lines, made by pounding technique, situated outside of the cartouche (QUR-148.70) b) Seven parallel lines, made by pounding technique, situated inside of the cartouche (QUR-956.67) c) Seven parallel incised lines, located inside of the cartouche with a rayed circle (QUR-122.7).

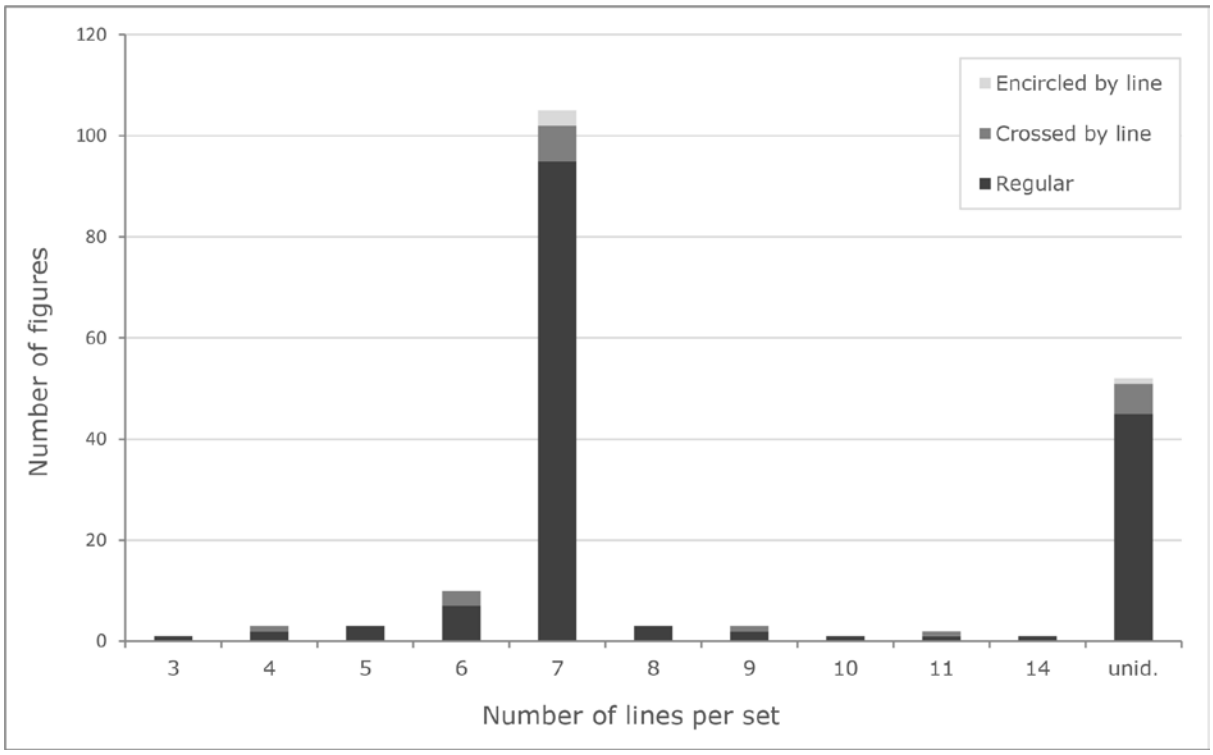


Figure 4.74. Stacked bar graph showing the number of 'set of lines' figures according to the number of lines in the set and the shape of the figure.

Figure 4.75. a) Seven parallel lines crossed by another line (scale bar = 2 cm) (QUR-137.82). b) Seven parallel lines encircled by another line (scale bar = 2 cm) (QUR-428.82).

4.5.6. Rectangles

The rectangle(s) motif, which could also be called the checkerboard motif, consists of a rectangle crisscrossed by vertical and horizontal lines, forming a checkerboard pattern or many smaller rectangles (Figure 4.76). This motif occurs 56 times in a variety of forms and sizes. Occasionally, it occurs alongside an inscription and rock art figures. In these cases, the rectangles seem to be related to the inscription and image; it may have a similar meaning as the dots and lines motifs.

4.5.7. Wheels

There are four figures that have a wheel-like shape (Figure 4.77). One consists of 45 dots that form a centre, eight 'spokes' radiating out from it, and a circle surrounding it (Figure 4.77a). The second 'wheel' consists of a round centre, six spokes, and one line encircling the spokes (Figure 4.77b). The third figure of this nature is interesting because it makes use of a natural round dent in the rock (Figure 4.77c). The dent forms the centre from where between 14 and 17 'spokes' radiate (the exact number is unclear due to weathering), all encircled by one line. The last wheel-like figure consists of lines radiating from a natural indent in the rock (Figure 4.77d). The lines intersect with several others, forming a strange total shape.

All of these wheel figures have the same patina as adjacent Safaitic inscriptions, but no clear association with the texts. Like the kites, these figures might depict the stone-built 'wheel' structures that can be found throughout Jebel Qurma and much of the Black Desert (cf. Huigens 2018) (see Chapter 2.4.3). The wheel motif shown in Figure 4.77c was found at a site where a wheel structure was located and may be a representation of this structure.

4.5.8. Kites

There are two figures that depict desert kites, large stone structures found across the Middle East (see Chapter 2.4.3). Both carvings depict the 'tail' of the kite on the slope of the boulder and the kite's enclosures on the flat part of the boulder as if depicting a 3D model

Figure 4.76. A rectangle motif, criscrossed with lines (QUR-1051.5)

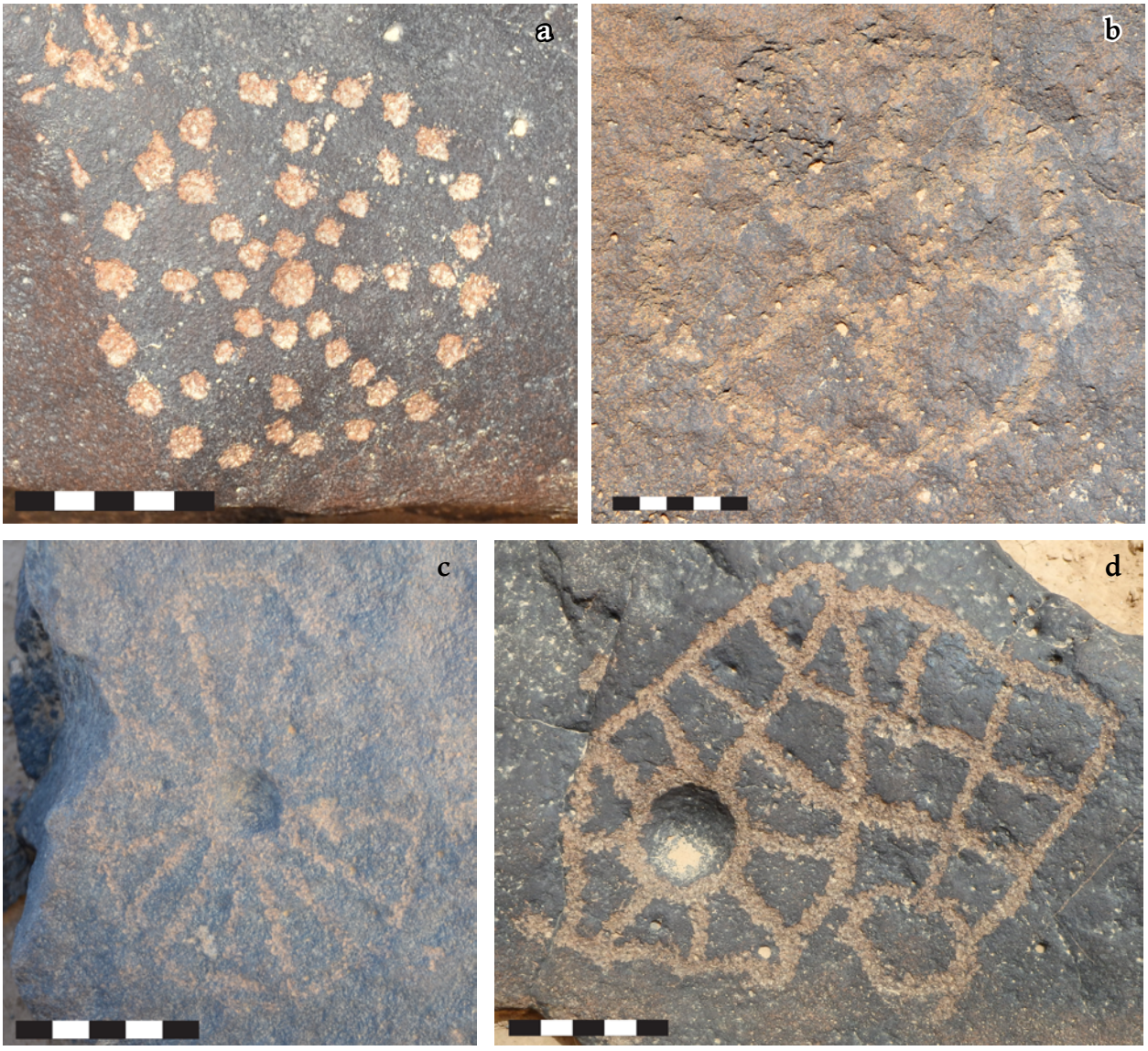


Figure 4.77. The four 'wheel' figures. a) Wheel motif made up of 45 individual dots (QUR-553.12). b) Wheel figure made of lines (QUR-613.15). c) This wheel figure has been carved so that the centre is a natural indent in the boulder (QUR-148.4). d) This figure is also made up of lines radiating from a natural indent in the rock, but the wheel shape is less pronounced (QUR-965.44).

of the installation (Figure 4.78) (see Chapter 6.2.2). Interestingly, the kite carvings are both found at site QUR-606, which overlooks one of the stone-built kites in the Jebel Qurma region.

Several rock carvings of kites are known from other areas in the eastern *badia* (Helms and Betts 1986; Macdonald 2005; Rollefson *et al.* 2008). They are similar to the Jebel Qurma ones; some also use the natural features of the boulder in their layout (cf. Helms and Betts 1986; Macdonald 2005). The dating of all of these desert kite depictions is problematic. The only clearly Safaitic kite carving is the one from the Cairn of Hani, discussed in Chapter 2 (Figure 2.12). However, none of the other kite carvings, including the ones from Jebel Qurma, resemble this carving in style and composition. The two kite carvings from QUR-606 appear to be slightly more weathered than the Safaitic carvings located at the same site. This might indicate that they are older than these carvings.

Helms and Betts (1986) describe several of the rock art kites as being superimposed by Safaitic inscriptions that also have lighter patina. However, one carving has several ostrich figures and a Safaitic text carved 'inside' the kite. Here Helms and Betts (1986: 71) note that the ostriches and inscription are slightly differently patinated than the kite, but that the ostriches might be contemporary with the kite carving. However, Macdonald (2005: 333) has shown that the inscription refers to the rock art figures ('By 'mr are the ostriches') so they must be contemporary. It is unclear what this entails for the dating of the kite carvings. The photographs of the carvings are unfortunately not of good enough quality to evaluate the differences in patina. If they are all contemporary, it could suggest

Figure 4.78. The two desert kite depictions. The two long lines probably represent the guiding lines, the large space the large enclosure, and the smaller circles the smaller enclosures, cells, adjacent to it. Both carvings make use of the shape of the boulder to mimic the layout of desert kites ((a) QUR-606.1, (b) QUR-606.2).

that at least some of the kite carvings are Safaitic. If the Safaitic carvings are younger than the kite engraving, it points to another interesting fact: the reuse of the kite carving by the later Safaitic authors to create a composition.

It is currently not possible to date the various kite carvings inconclusively as older than or contemporary with the Safaitic rock art. Hopefully, the discovery of other engravings of this kind will provide new evidence.

4.5.9. Rayed circles

There are 46 rayed circles, figures consisting of a circle and a varying number of rays. They are usually incised (Figure 4.79, Figure 4.70, Figure 4.73c). Like the sets of dots and line, they rarely appear on their own. Almost all of them occur in association with a Safaitic inscription and they are often related to a scene or large composition. Oxtoby (1968: 27) observed that some of these figures have seven rays. In the Jebel Qurma material, one rayed circle has seven rays and a few have a multiple of seven. However, no clear pattern could be detected in the number of rays the circles have. It is possible that these figures are meant to represent suns. There is evidence in the Safaitic inscriptions that the authors had astronomical knowledge and even used a zodiac calendar (Al-Jallad 2014, 2016). Considering this and the strong resemblance that these figures bear to suns, it is likely that the carvers were indeed depicting suns.

4.5.10. Star shapes

There are seven figures in the form of a star shape (Figure 4.80). All of these are quite crudely incised and consist of only an outline. Two of them are associated with Safaitic inscriptions. It is difficult to discern what the meaning of these figures is, especially because they occur so infrequently. It is possible that they are intended to represent stars.

Figure 4.79. An incised rayed circle has been carved above a conflict scene. Next to the rayed circle is an anthropomorph with dots, but it is poorly visible due to effacing. The whole scene has been badly effaced (QUR-694.3).

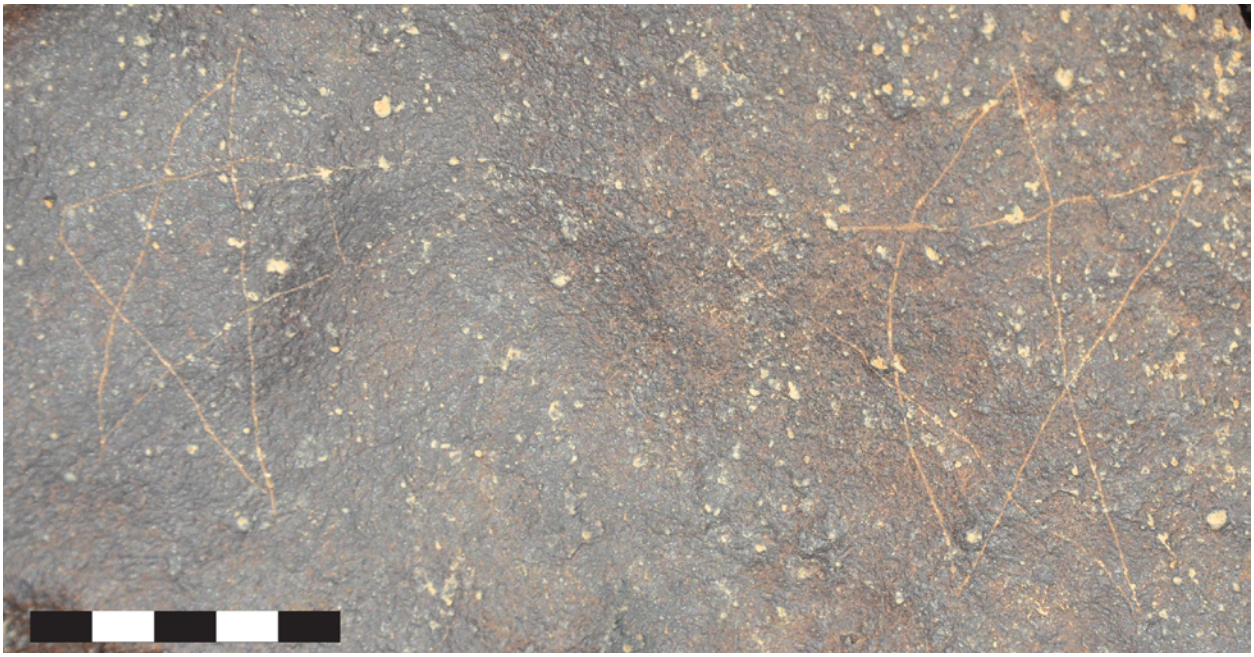


Figure 4.80. Two incised star figures (QUR-551.43).

4.5.11. Other

Oxtoby (1968: 28) recognised a set of seven crescent moons in his corpus[26] and in the carvings found at the Cairn of Hani[27]. Seven shapes can be seen in the petroglyph recorded by Oxtoby (1968) but there is only a tracing and a photograph of poor quality available so it is hard to judge if these are crescent moons. There is no tracing or photograph available for the petroglyph from the Cairn of Hani. The seven shapes recognised by Oxtoby may also be a variation of the set of dots or lines. Based on what is now known, the rayed circles are the only convincing astronomical figure in Safaitic rock art.

4.6. Representation of gender and sex

4.6.1. Introduction

Gender and sex are indicated in some of the rock art figures through either the depiction of sex-specific features or through the word used to sign the image in the associated inscription. Only 41 anthropomorphic figures have a clear gender. For 1228 out of the 3310 zoomorphic figures the sex could be determined (Table 4.12). The majority of the sexed zoomorphs are camels, which will be discussed in a separate section below.

4.6.2. The gender of anthropomorphs

The gender of the anthropomorphic figures is almost always indicated through their features. The male figures are very simple and lack detail and are only recognisable due to the depiction of a phallus (Figure 4.4c and d). There are 29 male anthropomorphic figures. Some of these are depicted with weapons or holding a lead rope and some are depicted in hunting, conflict, or leading scenes. In the case of men depicted in scenes, there are often several people portrayed in the scene, all very simple in form, and one is depicted with a phallus (Figure 4.2, Figure 4.4d). Overall, there are no clear patterns in when the anthropomorphs are represented as male and when they are not.

Table 4.12. The frequency of male, female, and unknown anthropomorphic and zoomorphic figures.

Type	Male	Female	Unknown	Total
Anthropomorph	29	12	281	322
Zoomorph	0	790	2079	0
Total	**29**	**802**	**2360**	**322**

As described earlier, female figures have emphasised hips and hair and occasionally their breasts and genitalia are depicted as well. There are 12 female anthropomorphs. In only one case does the inscription refer to an anthropomorphic figure and thereby tell us about the gender of the figure. The woman depicted in the raiding scene, described in § 4.3.2, is referred to as 'the musician' and the word used here for 'musician' (*zmrt*) refers to a female.

It is unclear if the other 281 anthropomorphic figures are meant to be male or female. Considering how differently the women are depicted from the other figures, one could argue that these other figures are

[26] ISB 154
[27] HCH 181

all male, or at least not specifically female. The carvers were mostly men so perhaps gender was not indicated because it was a given that the people in the rock art are men unless expressly shown otherwise. Conversely, if the gender is not clearly indicated, it is possibly also because it was not relevant to the depiction.

4.6.3. The sex of zoomorphs

The sex of the zoomorphic figures can be indicated through either the word used to sign the image in the associated inscription or through the depiction of sex-related features, such as a phallus or udders/teats. Excluding the camel figures, only 138 zoomorphs have their sex indicated, of which most are bovids and equids. In total, there are more male zoomorphs than females; 108 versus 30 figures (Table 4.13). Male animals are most commonly represented by the presence of a phallus rather than the word used in the accompanying inscription (Table 4.14). Interestingly, for female zoomorphs, it is the exact opposite. The female udders are depicted in only a few instances; more often it is the inscription that tells us that the animal is female. Only four animals have their sex indicated through both their features and the associated inscription.

Of the different types of zoomorphs, equids are most frequently indicated as male or female. There are a total of 75 male equids, all of which could be identified by the presence of a phallus on the equid (Figure 4.38, Figure 4.47). In contrast, there are only 12 female equids, half of which are ass *unid.*. Most of these could be identified as female based on the associated inscription, either *'tn* ('she-ass') or *mhr* ('filly'). Interestingly, of the 187 equids depicted with a rider, 31 are male and only three are female. This suggests that male riding horses and hybrids may have been especially important (Figure 4.6b, Figure 4.43a).

In the bovid group, the division is more equal: there are 15 male bovids compared to 17 females. There are two 'oryx or gazelle' and four 'bovid *unid.*' that have their sex indicated by the presence of a phallus or udders or the associated inscription (Figure 4.34c). Ten of the male bovids are oryx, which are indicated either through the associated Safaitic word *tr* ('the bull') or *trn* ('the two bulls'), the depiction of a phallus, or both (Figure 3.9, Figure 5.9b). There are also five male ungulates and four male quadrupeds of which two are probably oryx. The associated inscription refers to 'the two bulls'.[28] However, the figures are quite weathered and partly effaced so the characteristics oryx horns are not recognisable.

[28] QUR-186.8.1

Table 4.13. The frequency of male, female, and unknown sex of zoomorphic figures per motif type (camels excluded).

Motif	Male	Female	Unknown	Total
Gazelle	0	0	6	6
Ibex	1	15	88	104
Ibex or gazelle	0	0	87	87
Oryx	10	0	86	96
Oryx or gazelle	1	1	6	8
Young bovid *unid.*	0	0	3	3
Bovid *unid.*	3	1	93	97
Total bovids	*15*	*17*	*369*	*401*
Equid with rider	30	1	152	183
Horse	2	0	1	3
Young horse	0	2	0	2
Wild ass	4	2	7	13
Ass *unid.*	15	6	10	31
Young ass *unid.*	0	0	1	1
Equid *unid.*	24	1	109	134
Young equid *unid.*	0	0	6	6
Total equids	*75*	*12*	*286*	*373*
Dog	2	0	18	20
Canid *unid.*	1	0	40	41
Lion	3	1	39	43
Felid *unid.*	0	0	7	7
Carnivoran *unid.*	3	0	46	49
Total carnivorans	*9*	*1*	*150*	*160*
Ostrich	0	0	342	342
Total ostriches	*0*	*0*	*342*	*342*
Ungulate	5	0	168	173
Quadruped	4	0	286	290
Other	0	0	4	4
Unknown	0	0	78	78
Total	**108**	**30**	**1683**	**1821**

Table 4.14. The frequency of zoomorphic figures with a female or male sex indicated by their features (phallus or udders), the associated inscription, or both (camels excluded).

Identification method	Female	Male	Total
Features	4	96	100
Inscription	25	9	34
Both	1	3	4
Total	30	108	138

Figure 4.81. A dog depicted with a phallus. It is one of the few carnivorans for which the sex is indicated. The dog is depicted in the hunting scene shown in Figure 6.7 (QUR-176.32).

Based on the inscriptions, 15 female ibex were identified and only one male (Figure 4.28, Figure 4.29). Eight of the female ibex have been identified as such because they are identical to the figures identified as '*nz* (see § 4.4.3). However, it is unclear whether the rest of the ibex are meant to represent males or whether the sex is perhaps irrelevant. Of the real ibex, only the male ibex has long, scimitar-shaped horns. The female ibex has short, scimitar-shaped horns. The standard ibex motif in the rock art thus has the characteristic male horns. On the one hand, the existence of terms for both he-goat and she-goat would suggest that if the carvers wished to specify the sex of the ibex, they have a specific word for this. On the other hand, the ibex associated with the word *'nz(t)* clearly have short horns, which could indicate that all of the figures with long, scimitar-shaped horns are male. Considering how characteristic the long scimitar-shaped horns are for the male ibex, it seems likely that all of these figures are meant to represent males.

The sex of the carnivorans is rarely indicated. In total, nine of them have a phallus, indicating that they are male (Figure 4.81, Figure 4.25b, Figure 4.56a). They are found among the dogs, canids *unid.*, lions, and carnivorans *unid.*. There is only one example of a female carnivoran, a lion. It is featured together with another lion being hunted or attacked by an archer (Figure 4.82). One of the two lions has teats, indicating it is a female.

In summary, other than the dromedary camels, only a small percentage of the zoomorphic figures is depicted as male or female. The vast majority of these are equids, indicating that sex was especially important in the depiction of equine figures. This is in contrast to the carnivorans where the sex is rarely indicated. The carvers had the choice to use words, anatomical features, or both to indicate sex and, considering that 'sexless' zoomorphs are the norm, it appears that the indication of sex on an animal was a conscious and important choice. Depicting either a male or female animal may have had an important symbolism in the composition.

Figure 4.82. Two lions facing an archer. The lion below has teats depicted, indicating that it is a female. The lions' muzzles have been modified in more recent times (QUR-551.88).

4.6.4. Dromedary camels

Among the dromedary camel figures, the representation of sex is much more common. Female figures are most frequently depicted (Table 4.15). The Safaitic inscriptions refer to the camels using a variety of words, indicating both age and sex, as described in § 4.4.2. Additionally, various anatomical features are used to depict sex. Like other zoomorphs, the presence of a phallus or udders indicates a male or female camel, respectively. The position of the camel's tail is also generally taken to be an indication of the camel's gender in Arabian rock art. Searight (1983) first recognised the relationship between the sex of the camel as given in the inscription and the position of the tail: male camels' tails hang down while females' tails curl up. This seems to hold true for different kinds of Arabian rock art, such as Safaitic and Hismaic.

Table 4.15. The number of dromedary camel figures by age and sex.

Age and sex	**N of figures**
Female	611
Young female	149
Male	322
Young male	8
Unknown	391
Young unknown	5
Total	**1486**

The Jebel Qurma material also supports this interpretation; inscriptions referring to 'the (young) she-camel' are associated with images of camels with its tail curled up (Figure 4.83) and those referring to 'the he-camel' are associated with images of camels with their tails hanging down and/or with a phallus (Figure 4.15d). There are two exceptions. At QUR-529, there is an inscription referring to 'the she-camel', but the dromedary's tail is hanging down (Figure 5.21). At another site, there is an image of a camel with its tail curled up, while the inscription refers to 'the he-camel'. It is possible that the latter image and inscription do not belong together as they are quite separate on the panel. However, because in both cases it is unclear what the correct interpretation of the sex is, both camels have been labelled as 'unknown' sex.

The use of the up-curled tail to indicate a female camel may stem from the fact that when a female camel is in heat, she will raise her tail when near a male (Khanvilkar *et al.* 2009: 72). The position of the tail is also used to judge whether the conception was successful; the she-camel cocks her tail when she is pregnant (Khanvilkar *et al.* 2009: 72). It is unclear whether the camels with up-curled tails are meant to represent pregnant females, females in heat, or whether it is just a convention used to depict a female camel. However, the latter interpretation seems likely considering the large number of camels depicted with their tails curling up and the frequent association of this type of depiction with an inscription referring to 'the she-camel' or 'the young she-camel'. Moreover, some of the female camels are depicted with udders, which may instead be an extra emphasis to indicate that the camel is pregnant or nursing.

Figure 4.83. The inscription refers to 'the two she-camels'. The other female camel is depicted on the other panel of this boulder (see Figure 3.14) (QUR-176.47).

There are thus different ways by which the sex of the camels is represented. These are also often combined, such as the depiction of the tail hanging down and a phallus on a camel (Figure 3.10) or the depiction of the tail curled up and the udders (Figure 4.15a). Some combinations occur more frequently than others (Table 4.16). The position of the tail, the presence of udders or a phallus, and the word used in the inscription were all used to determine whether a camel is female or male. In contrast to the other zoomorphic figures, the majority of dromedaries have a clear sex indicated (1096 in total) and the majority of these are female. There are 765 females, making up 51.2% of all dromedary camel figures and 69.8% of the sexed camels. A much smaller number is male: 331 in total. Of the sexed camel figures, 148 are young female dromedaries, but only eight are young males. There are a further five dromedary camels for which the sex could not be established but could be recognised as young because they are depicted nursing at a large female camel. The majority of the dromedary camels have been sexed based on the depiction of the position of the tail, followed by a combination of the position of the tail and the associated inscription. Only a few camels were depicted with udders/phallus and a clear position of the tail and were accompanied by an inscription indicating the sex.

Table 4.16. The frequency of dromedary camel figures with a female or male sex indicated by the position of their tail, their features (phallus or udders), the associated inscription, a combination, or all.

Identification method	Female	Male	Total
Position of tail	577	215	792
Udders/phallus	3	3	6
Inscription	21	1	22
Position of tail and udders/phallus	21	37	58
Position of tail and inscription	127	38	165
Udders/phallus and inscription	0	1	1
All	11	35	46
Total	**760**	**330**	**1090**

4.7. Scenes

4.7.1. Introduction

Following the definition of a scene as two or more figures interacting reflecting an action, 181 scenes are identifiable in the Jebel Qurma corpus. Five different types of scenes are recognised: hunting, conflict and combat, leading, nursing, and mating (Figure 4.84, Table 4.17). Additionally, there are two scenes that might represent an erotic scene between two anthropomorphs and one that might depict two figures dancing, but they are not clear enough to be identified as such. There are 12 scenes that depict figures interacting, but it is unclear what the scene is intended to portray (Figure 4.85). These are categorised as 'unknown'. Safaitic corpora from other areas in the *harra* have yielded scenes that depict music making (Macdonald 2012: 278) and ploughing (Ababneh 2005; Al-Manaser 2008), but no scenes similar to these have been found in Jebel Qurma. The inscriptions associated with the scenes rarely make reference to the content of the scene. They usually sign the author's name and reference the image in general terms, such 'the image' (Figure 4.54) or 'the animals' (Figure 1.6). In total, 754 figures are depicted in scenes (Table 4.1).

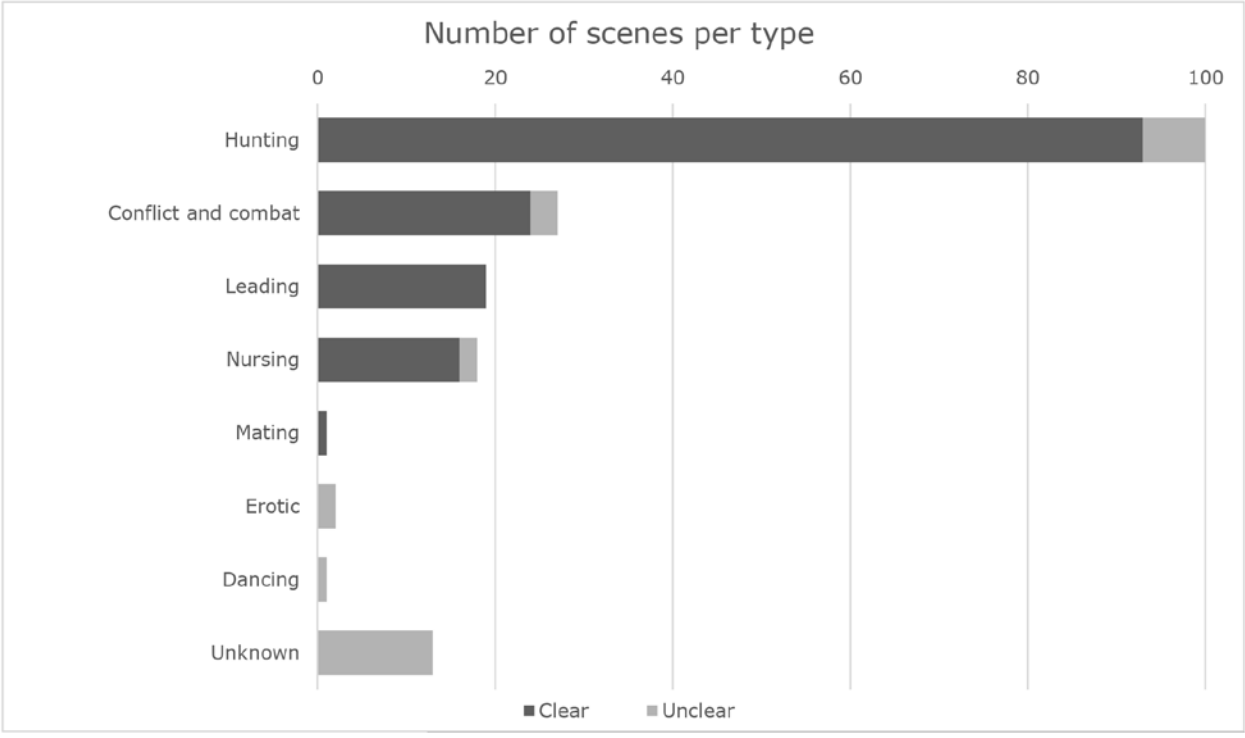


Figure 4.84. Stacked bar graph showing the number of scenes per type of scene.

Table 4.17. The number of scenes per type.

Type	Clear	Unclear
Hunting	93	7
Conflict and combat	24	3
Leading	19	0
Nursing	16	2
Mating	1	0
Erotic	0	2
Dancing	0	1
Unknown	0	13
Total	*153*	*28*
Total N of scenes		**181**

Figure 4.85. Two camels face one another with a person standing in between them. The figures appear to be interacting, but it is unclear what the scene is meant to represent (QUR-2.365).

4.7.2. Hunting

This is a broad category encompassing several different types of depictions. They all have in common that they feature wild animals and that they portray either the interaction between humans and wild animals or the interaction between predatory animals and prey animals. It is possible that some of these scenes do not necessarily represent a hunting scene per definition. For example, the scenes featuring humans and lions might depict humans attacking a lion or defending themselves against the lions rather than a lion hunt. However, there is a common thread to all of these scenes, that of wild animals and the interaction with them or between them.

Figure 4.86. An example of a solitary hunting scene featuring a person on a mount. The rider is hunting an oryx, which appears to have an arrow or lance sticking out of its body. The scene is accompanied by two sets of seven lines, a set of seven dots, and an inscription (QUR-523.20).

Figure 4.87. The depiction of a solitary animal hunting scene. A lone carnivoran, probably a big cat, attacks a flock of ostriches (QUR-256.3).

Hunting scenes are the most common of all the scenes; there are 93 clear hunting scenes and an additional seven that could not be identified with certainty. Hunting scenes thus make up more than 56% of the scenes, making them one of the most common themes in the rock art. On average, hunting scenes feature a large number of figures compared to the other types of scenes. There are a large number of hunting scenes that include only two figures, but there also scenes featuring between 10 and 21 figures.

The human hunting scenes and the animal hunting scenes can be divided into two categories: solitary and cooperative hunting. Solitary hunting is classified as one predator hunting the prey. There are four variations on solitary hunting in the rock art: a solitary human (Figure 4.38, Figure 4.40), a solitary human on a mount (Figure 4.86), a human hunting with a dog (Figure 3.8, Figure 6.2), and a solitary animal hunting (Figure 4.87).

Cooperative hunting is classified as two or more predators hunting the prey. There are four similar variations: two or more humans hunting together on foot (Figure 4.88), one or more human(s) hunting together with a person on a mount (Figure 4.89), two or more humans hunting with dogs (Figure 4.90, Figure 4.51), and two or more animals hunting together (Figure 4.91). It is noteworthy that there are no depictions of the use of desert kites for hunting by groups of people. If the Safaitic carvers did make the desert kite carvings and if they reused the kite structures for hunting, they did not depict this in the rock art of the Jebel Qurma region. The kite depiction at the Cairn of Hani therefore appears to be an anomaly for now.

The type and number of prey appear to vary depending on the type and number of hunters (Table 4.18).

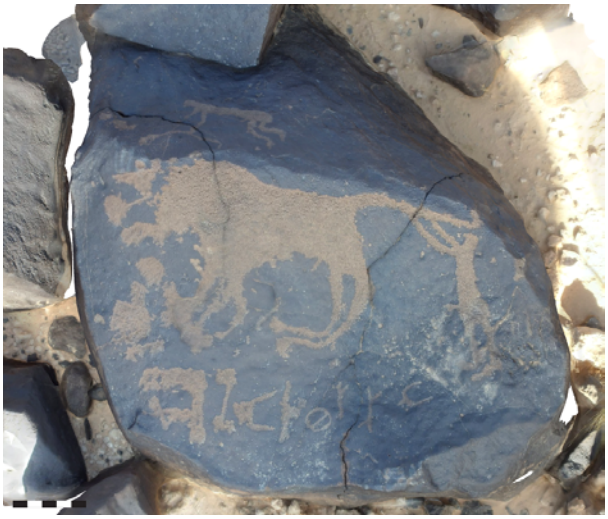


Figure 4.88. A scene depicting cooperative hunting between two humans on foot. They are hunting or attacking a lion. One is 'hiding' on the other panel with a bow and arrow; the other appears to be carrying out the rather dangerous act of grabbing the lion's tail (QUR-449.19).

Altogether, solitary hunting scenes are more frequent than cooperative hunting scenes (78 scenes versus 22). The most commonly depicted type of hunting is the solitary human. The second most common is the single person on a mount, followed closely by solitary animals hunting.

The solitary human hunter is almost always an archer and they are commonly depicted hunting the 'ibex or gazelle' motif or the wild ass (e.g. Figure 4.38, Figure 4.40, Figure 6.8). The wild ass is almost exclusively hunted by the solitary archer. In comparison, the human on a mount is most frequently portrayed hunting an oryx (e.g. Figure 4.6d, Figure 4.86, Figure 4.89). Most of the mounts are equids and probably all depict horses or mules/hinnies. Most of the solitary animal predators are canids, but there are also a few more generic-looking carnivorans and one lion hunting.

Figure 4.89. A person on horseback hunts an oryx with a lance. A person on foot below appears to be helping, although It is unclear what his/her role is exactly. The scene is badly effaced in various places. In the inscription, the author states 'he {lay in wait} for enemies' (QUR-176.15).

The most common prey is the ostrich, almost always depicted in flocks, followed by the 'ibex or gazelle'. There are only six scenes featuring a solitary person hunting with a dog. In the majority of these scenes, they are hunting flocks of ostriches. There are no scenes of a single person hunting with more than one dog.

The most common type of cooperative hunting scene is animals hunting together, of which the majority depict a pack of canids (e.g. Figure 4.54, Figure 4.91). They are often shown hunting a flock of ostriches. There are three scenes in which lions are hunting together. One portrays two lions attacking a camel and two depict two lions hunting a flock of ostriches (Figure 3.11, Figure 6.24).

The second most common type of cooperative hunting is humans hunting together with dogs; there are seven scenes depicting this (e.g. Figure 4.51, Figure 4.90). The majority of these scenes feature archers, usually two but sometimes three or four, together with one dog. In contrast to the single hunter with a dog, they are usually hunting bovids and rarely ostriches.

There are five scenes of humans hunting on foot, with either a bow or another weapon, together with a person riding an equid or camel. In most cases, they are hunting an oryx. One of these scenes portrays a large group of people on foot and one person on an equid attacking the carnivoran shown in Figure 4.59b, which could be a lion or hyena.

The least frequent of all the types of hunting scenes is cooperative hunting between humans on foot, i.e. two or more humans hunting together. There are only two scenes that depict this. Both feature two people hunting one or two lions (Figure 4.82, Figure 4.88). It is of course also possible that these scenes depict people *defending* themselves or their livestock from lions.

The most frequently hunted animal is the ostrich and the most common hunter is the archer. Canids are also

Figure 4.90. A large cooperative hunting scene featuring three archers (on the left) and two dogs (on the right) hunting a herd of 14 bovids. The bovids, which are probably ibex, are 'decorated' with a line pattern. This is the largest scene in the corpus in terms of the number of figures involved (QUR-439.11).

Figure 4.91. The second largest hunting scene in the corpus. It features a pack of four canids hunting a large flock of 16 ostriches. There is also one unidentifiable quadruped depicted in the scene (QUR-2.511).

Table 4.18. The type and number of motifs per type of hunting scene.

	Solitary				Cooperative					
Motif	**Human**	**Human on mount**	**Human (on mount) with dog**	**Animal**	**Humans**	**Human(s) and human on mount**	**Humans with dog(s)**	**Animals**	**Total figures**	**N of scenes**
Anthropomorph	3		2		2	9	1		17	10
Anthropomorph with bow	28		3		2	5	16		54	44
Equid with rider		20	1			4			25	20
Dromedary camel with rider						1			1	1
Ungulate with rider		1							1	1
Bovid	2	5							7	5
Dromedary camel						1		1	**2**	**2**
Equid				1				2	**3**	**2**
Gazelle							6		6	1
Ibex	7	1	4	12			2	3	**29**	**10**
Ibex or gazelle	18	2	4	7			15	6	**52**	**11**
Oryx	4	8		3		5	8	5	**33**	**24**
Ostrich	8	1	19	60			6	43	**137**	**30**
Wild ass	12	1							13	13
Ungulate	2	1						1	**4**	**4**
Quadruped	4	3	1	1			1	2	**12**	**10**
Dog			6				8		14	13
Canid				12				18	**30**	**18**
Lion	4			1	3	1	1	5	**15**	**12**
Felid		1				1			2	2
Carnivoran	2			6			1	1	**10**	**10**
Total figures	*94*	*44*	*40*	*103*	*7*	*27*	*65*	*87*	*467*	
N of scenes	**30**	**21**	**6**	**20**	**2**	**5**	**7**	**9**	**100**	

depicted often: 28 times in total. It is important to note that many of these may represent dogs as they look very similar to them, but because there is no human depicted, it is not certain that they are domestic canids. Archers occur the most frequently in numbers of scenes; they are depicted in 44 different scenes. They are followed by ostriches (29 scenes), oryx (24 scenes), and equids with riders (20 scenes). Dromedary camels, with or without a rider, are rare in the hunting scenes.

Reviewing these results, it appears that several different types of hunting and hunting techniques are depicted in the rock art. Furthermore, the type of hunting and the number of hunters appears to be correlated to the type of prey. Archers often occur as the solitary hunter, hunting either herds of ibex/gazelle or a single wild ass. Hunting on horseback is also common and the prey is usually a lone oryx. In comparison, ostriches are often the choice of prey for solitary animals, pack animals, and the single human hunting with a dog. Just humans hunting together on foot is rare, but humans hunting on foot together with dogs are more common. These scenes usually feature archers and dogs hunting ibex/gazelle together. There are thus different variations on the depiction of hunting and there are appear to be distinct patterns in what is depicted in which composition.

4.7.3. Combat and conflict

There are 24 scenes that depict conflict and combat and three scenes that probably do, but are unclear. Two of the 'combat' scenes differ from the rest in that they feature fighting between animals. Both depict two male camels that appear to be fighting. The camels are facing each other with their necks crossed, which is how bull camels fight (Figure 4.92).

The other scenes all feature humans with weapons. These scenes can be broadly divided into two categories: scenes depicting general combat or conflict and scenes depicting raiding. The first category, consisting of 13 scenes in total, features narratives of which the context in which the fighting is taking place is unclear. Two of the scenes depict people on horseback fighting each other and one depicts two archers fighting each other. Ten scenes feature a person on a mount fighting one or more people on foot (Figure 4.46).

Figure 4.92. Two male camels with their necks crossed. This probably depicts two bull camels fighting (QUR-974.21).

Figure 4.93. Three people on camelback associated with an inscription that states 'he raided for the Nabateans/towards Nabatea'. The scene thus likely depicts riders on a raid (QUR-2.646).

The second category is scenes that depict raiding; there are 12 in total. The existence of raiding as an 'activity' among the desert nomads is evidenced by Safaitic inscriptions from across the *harra*. For example, 'By Ngs² son of ʿm son of Grm and he was on a raid so and he was lying in wait'[29] and 'By ʾnʿm son of ʿbṭ and he grieved for his raiding party'.[30] In the Jebel Qurma corpus, there are several attestations of words referring to raiding (Della Puppa forthcoming). One of these is associated with an image depicting three riders on camelback with weapons and who look like they are riding towards something (Figure 4.93). Several translations of the associated inscription have been proposed, including 'he raided for the Nabateans', 'he raided towards Nabatea' and 'he sought refuge'.[31] The rock art scene suggests these are people riding towards battle, indicating that 'raid' is the most likely translation; however, it is still unclear if they were raiding for or against the Nabataeans.

Figure 4.94. Two riders on camelback raiding another camel. One of the riders is touching the male camel with his/her spear or lance, claiming it as booty (QUR-961.15).

Macdonald (1990) has identified raiding scenes in Safaitic rock art based on the occurrence of scenes in which a person on a mount is touching a camel with his or her spear. Macdonald (1990) argues that these are not scenes depicting the hunting of camels, but the raiding of camels, whereby the victor touches his 'booty' with a spear to indicate that it is his. This interpretation is the most plausible for two reasons. First, there is considerable epigraphic evidence for the occurrence of raiding among these societies. Second, zooarchaeological evidence shows that, by the Hellenistic period, wild camels no longer existed in Arabia and the dromedary camel had already long been domesticated (Almathen *et al.* 2016; Rosen and Saidel 2010).

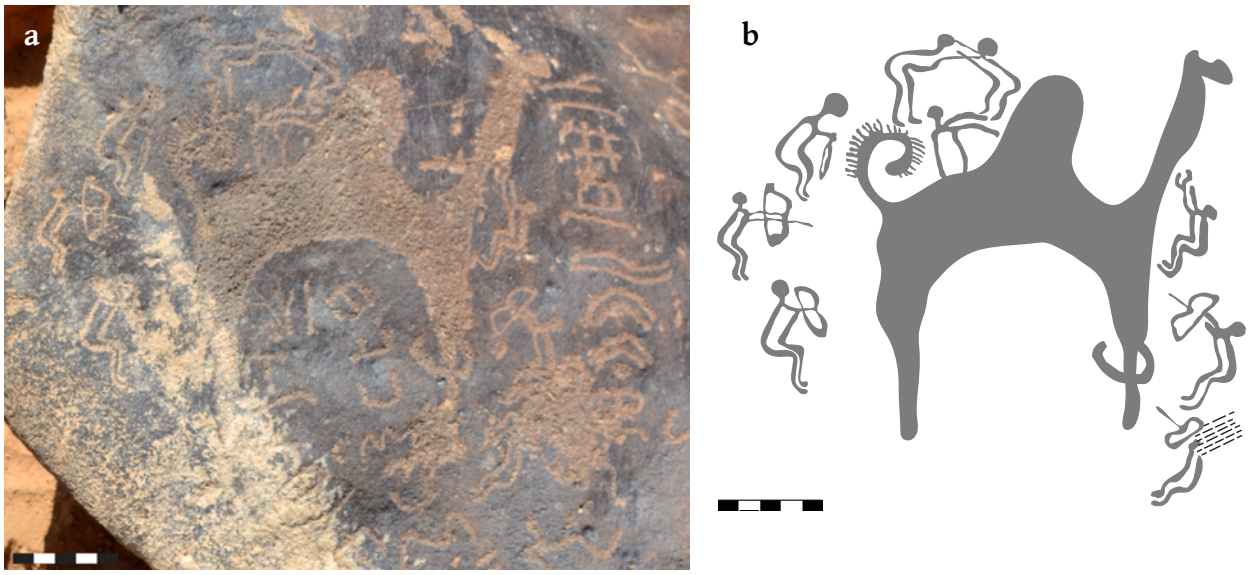


Figure 4.95. a) A scene depicting camel raiding. Seven people with weapons are fighting each other, surrounding a female dromedary camel. There is another person riding the camel and one holding the camel (QUR-137.69). b) Tracing of the scene (the inscription is excluded). Dashed lines represent parts not visible due to effacement.

[29] ASWS 303
[30] C 908
[31] QUR-2.646.1/WH3925; see OCIANA for translations and commentary

Figure 4.96. a) Two people on horseback appear to be trying to raid a female dromedary and a smaller male dromedary, which may be a young camel. One person, with a bow and a sword, is holding onto the larger camel, as if trying to keep her from the raiders. Another person is fighting with a bow and arrow. On the bottom left of the panel is a small hunting scene with an archer hunting an oryx (QUR-171.22). b) Tracing of the scene (the inscription is excluded).

In the Jebel Qurma corpus, there is one scene very similar to the ones described by Macdonald. In this scene, two riders on dromedary camels are depicted alongside a male dromedary camel without a rider. One of the riders is touching the dromedary with what appears to be a spear (Figure 4.94). Following on the argument laid out by Macdonald (1990), this scene depicts a raid in which a camel is being claimed.

There are nine other scenes that depict the raiding of dromedary camels. They all show people fighting each other around a dromedary camel. In several of these, the camel is also being held by an anthropomorph, as if being held back from the attackers (Figure 4.95 and Figure 4.96). I propose that these scenes depict the camel as the object of the raid and raiders and defenders fighting each other. There are no clear scenes of people raiding a woman or women. Although the scene shown in Figure 4.2 appears to portray a raiding scene, based on the associated inscription, it is not clear if the woman was the object of the raid or a 'cheerleader' to the raid.

4.7.4. Leading

The leading, nursing, and mating scenes could all be categorised as pastoral or domestic scenes, scenes that depict narratives from everyday life. There are 17 scenes that represent 'leading/holding'. They feature an anthropomorph leading or holding a domestic animal by what appears to be a lead rope (Figure 4.97). Most of these scenes, 10 in total, feature a person holding or leading a dromedary camel. In many of these cases, the anthropomorphic figure appears to be holding rather than leading the camel as he/she is facing it. In five of the scenes, the camel also has his or her leg hobbled, indicated by the raised foreleg. In one scene the person is leading a Bactrian camel (Figure 4.20a).

There are four scenes in which the anthropomorph is holding or leading an animal with a rider; one features a dromedary with a rider and three feature equids with riders (Figure 4.49). There are an additional two scenes depicting a person holding or leading a zoomorphic figure that could not be identified beyond 'quadruped'. There is one scene in which an anthropomorph is holding a female dromedary camel while a young camel nurses from it (Figure 4.98).

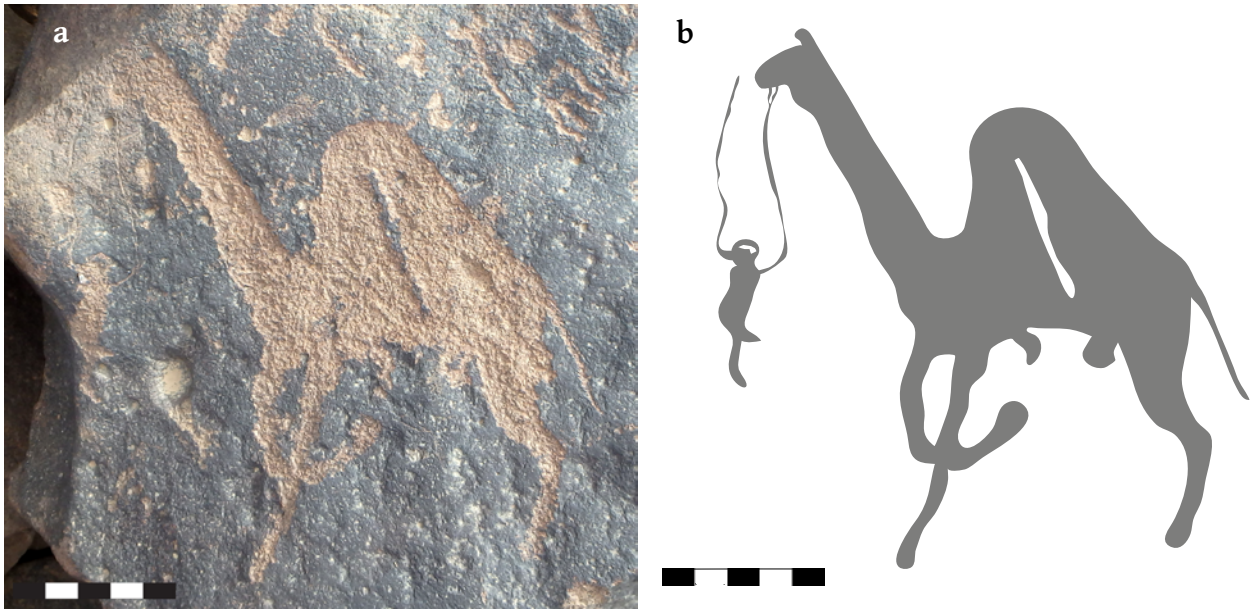


Figure 4.97. a) A small anthropomorph holds or leads a male camel by a leadrope. The camel's leg is bound, indicated by the raised foreleg (QUR-956.4). b) Tracing of the scene.

Figure 4.98. A leading and nursing scene depicting a person holding a female camel while a young camel nurses from her (QUR-64.61).

Figure 4.99. A young camel nurses from a mother camel. The mother's udders are depicted (QUR-64.129).

4.7.5. Nursing

Fifteen female zoomorphs, primarily camels, are depicted with a young between their legs with its head facing up towards the mother's belly as if drinking from her. In nine of these 'nursing' scenes, the mother's udders are also depicted (Figure 4.99, Figure 4.18). The majority of the nursing scenes are of dromedary camels with a young camel, but there is one scene with two equids and one with two bovids. In the scenes featuring camels, the mother is generally depicted in detail while the young is simple and lacks detail, including the depiction of the sex.

4.7.6. Mating

There is one scene that appears to depict mating between two camels (Figure 4.100). A male camel has been carved on top of a female camel. The two figures have been carved in the same style and using the same technique so they are contemporary. However, it is uncertain if the camels' positions are meant to represent a mating scene; it is the only scene of its kind.

Figure 4.100. A possible mating scene between a male camel and a female camel (QUR-148.104).

4.8. Conclusion

This chapter presented the results of the analyses of the content of the Jebel Qurma rock art, revealing a number of interesting results in the motifs and scenes depicted. The corpus of 4512 figures shows a specific set of anthropomorphic, zoomorphic, and abstract motifs. They are depicted on their own, in groups of figures, and in five different types of narrative scenes. The zoomorphic motifs dominate the assemblage, making up almost three-quarters of the corpus. Domestic animals are depicted frequently, of which the dromedary camels are prevalent, making up almost half of the zoomorphic figures and a third of the entire rock art corpus. Domestic equids are common as well and are usually depicted in hunting and conflict scenes or being ridden by a rider with a weapon. The only other domestic animal that can be identified with certainty is the dog, which features predominantly in hunting scenes. The hunting scenes dominate the scenic compositions and portray a set variety of wildlife, including lions, wild asses, oryx, ibex, and ostriches. These animals are also depicted often in non-scenic compositions, forming a significant part of the material.

Compared to the number of zoomorphs, anthropomorphic figures are few and are depicted in small dimensions and a simple style. They are most commonly depicted in scenes interacting with animals. The women figures diverge from the other anthropomorphic figures in style but are depicted rarely in the corpus. The abstract motifs are dominated by the enigmatic sets of dots and lines. These figures never occur on their own; they are always found in a composition together with an inscription and often another rock art figure. This is also the case for the rayed circle figures. Other recurrent abstract figures are circles and rectangles; however, their connection to the rest of the rock art is less clear. The kite and 'wheel' figures are fascinating, especially in their use of the natural features of the boulder (see Chapter 6.2.2). They may be evidence for the depiction of the anthropogenic landscape of these people.

The content of the rock art reveals three clear themes in what the Safaitic carvers chose to depict: pastoralism, wildlife, and conflict. The first consists of motifs and scenes of a pastoral nature, aspects of the pastoral way of life. This theme is predominantly represented by the dromedary camels figures. They are commonly depicted on their own or in a group with a abstract motif, such as a set of dots. The female is the most frequently depicted camel, suggesting a specific significance of the female camel. Additionally, there is a relatively large number of camels, mostly female, identified as young. There are also two Bactrian camels, which may indicate knowledge of or the presence of Dromedary-Bactrian hybrids. Dromedaries are also sometimes depicted in scenes and some of these appear to reflect the 'every day' of a herding society, such as people leading or holding camels and camels nursing young camels. Although there are few inscriptions from Jebel Qurma mentioning camels in a narrative, the dominance of the dromedary in the rock art parallels the insight provided from Safaitic inscriptions in general: the dromedary as an integral part of the pastoralist way of life of these peoples. Their importance might also be reflected by their central role in raiding scenes, a point that will be discussed further in Chapter 7.

Other aspects of a pastoralist way of life that one might expect are not depicted. For example, there are no scenes depicting everyday, 'domestic' activities involving only humans. Humans are only depicted as hunting or riding or leading animals. Equally, the goats and sheep mentioned in the textual engravings in other Safaitic corpora are not depicted in the rock art.[32] There are no inscriptions mentioning goats in the Jebel Qurma corpus so perhaps there is also a geographical difference in the content of the inscriptions. However, clear depictions of goats or sheep from other regions in the *harra* are also very rare. There thus appears to be an overall convention in Safaitic rock art of emphasising the dromedary camel and equids as opposed to other animals that could have provided subsistence, such as goats, and sheep. Similarly, there are only a few convincing depictions of donkeys, an animal that would

[32] For example, an inscription from Wādī Salma, Jordan: 'By Tm son of S¹lm son of Nml of the lineage of Grs²t and he helped the goats to give birth So O Lt [grant] security. And he remembered Yṯ˙ son of S²ddt' (AbSWS 49).

have been well-suited to the desert environment. However, they would not have been useful as mounts for hunting or fighting, activities well-represented in the rock art, which might explain their relative absence.

In almost all of the hunting and conflict scenes, equids are the mount of choice. These domestic equids are most likely horses and horse-donkey hybrids. Fast and well-adapted to the desert terrain, horses and mules/hinnies would have been the ideal mounts for hunting, fighting, and raiding. The majority of the equids with riders are male, perhaps also reflecting a preference or importance. The horses and hybrids form an important part of the conflict theme, which includes equids with riders carrying weaponry, fighting scenes, and raiding scenes. The 'general' fighting scenes depict humans on mounts fighting people on foot. The raiding scenes portray camel raids, with people on foot, riding an equid, or riding camels capturing or 'claiming' a camel, often a female one. It is noteworthy that in the conflict scenes and the solitary horsemen depictions, the emphasis is rarely on the people. Although humans feature in the scenes and clearly would have played a key role in the fighting and raiding, the visual focus is on the animals, as will be discussed further in Chapter 5. Furthermore, there are very few depictions of only people on foot carrying weapons with no animal. The only exception is the woman figures, which are featured on their own and in a couple of scenes. Their elaborate execution suggests they were important but they are a rare occurrence in the rock art.

Anthropomorphic figures feature often in the many hunting scenes, of which the archer is the most common. However, the emphasis, in general, is on the wild animals in the scenes or the mounts used in the hunt. Dogs are also rarely depicted in detail but they nonetheless appear to have played an important role in the hunting scenes. Dogs are also mentioned with affection in the narrative inscriptions, suggesting that these animals were socially significant to the Safaitic authors. The one signed depiction of dogs is an interesting anomaly in Safaitic rock art.

Hunting scenes are the most common type of scenic composition and together with the frequent depiction of wild animals on their own or in groups, they form the second theme in the rock art: wildlife and people's interaction with it. The study of the hunting scenes revealed a number of clear patterns. The solitary archer is the most frequently depicted hunter and he/she is usually hunting a wild ass or an ibex/gazelle. In contrast, the solitary human on horseback is most frequently portrayed hunting an oryx. The human hunting alone with a dog is usually hunting a flock of ostriches, whereas several humans hunting together with dogs are usually hunting bovids. The prey of the solitary or pack of canids is most often the ostrich. There are thus variations in the number and the type of prey depending on the number and type of hunters and the method of hunting. The hunting scenes reflect both the hunting of animals by humans (or, perhaps, sometimes humans defending themselves against wild animals) and the hunting of animals by predatory animals.

The recurrently depicted wild animals are ibex, oryx, ostriches, wild asses, and lions. The ibex, oryx, and ostriches are the most frequent of the wild animals; both types are frequently depicted in herds or flocks and being hunted. Ostriches are the only birds depicted and are also mentioned in inscriptions with narratives. The ibex and the oryx appear to have played an important role in the rock art, featuring frequently on their own and in hunting scenes. There is only one signed depiction of gazelles, but it is possible that many of the bovid *unid.* figures are meant to represent gazelles. Wild asses could not be identified often with certainty but may also make up a large part of the equid *unid.* They are almost exclusively portrayed as being hunting by the solitary archer and are depicted skilfully and in detail, as will be discussed in Chapter 5.

Lions are an interesting motif as the only clearly identifiable wild carnivoran and one of the few other wild animals mentioned in narratives in the inscriptions. The big cat is depicted threateningly in scenes, being attacked by or perhaps attacking humans and there is one scene of lions attacking a camel. Similarly, in various Safaitic texts, authors describe dangerous encounters with lions. The same is true for wolves, but they cannot with certainty be identified in the rock art. The sex of the carnivorans is indicated rarely in comparison to the other wild animals. Most commonly, the male oryx, male wild ass, and female ibex are identified. If all of the ibex depicted with long scimitar-shaped horns are meant to represent male ibex then this motif figures prominently in the rock art. However, in general, the sex of the wild zoomorphs is depicted less frequently than that of the domestic animals.

There is strong evidence to suggest that all of the animals featured in the rock art existed in the region in antiquity and that the rock art therefore reflects the environment of the Safaitic authors. However, it is noteworthy that the rock art is not representative for all of the desert wildlife that would have been part of the nomads' landscape. The environment would have included smaller felids and canids, birds of prey, snakes, lizards, scorpions and insects. Aside from one scorpion and lizard, none of these animals is depicted in the rock art. Additionally, besides two hybrid animals, there are no representations of mythical or fantastical animals. These two factors indicate that the rock art reflects an

element of realism. Supporting this are the set patterns of prey versus hunting technique portrayed in the hunting scenes, suggesting an affinity with the specifics of hunting. Additionally, the pastoral motifs and scenes appear to depict aspects of everyday life. However, the rock art clearly portrays only a *selection* of reality. Many aspects were not depicted, such as certain wild animals, domestic and everyday human activities, and some features of pastoral life like milking and (with one possible exception) breeding and mating. Moreover, some of the motifs and scenes are portrayed more frequently and play a larger role in the petroglyphs. There were thus certain conventions in what to depict and what to not depict. These choices and emphases in the rock art can inform us about the societies and their worldview; I explore this further in Chapter 7.

The only figures that seem divorced from real life are the enigmatic dots, lines, and anthropomorphs with dots. It is unclear how to interpret these figures but it is apparent that they were intended as part of compositions of carvings; they are never depicted on their own. Whether they were intended to represent, for example, the Seven Planets or the seven divinities, they have taken on an abstract form. While the origin of their symbolism is unclear, the hypothesis that they were apotropaic signs designed to protect the carvings is plausible. The carvers sometimes included curses in their inscriptions for this reason and these motifs may have had a similar purpose, which would explain why they are only found in combination with inscriptions and images. The rayed circled may have been carved to the same effect. Either way, they also suggest that there was more to the engravings than just the depiction of the everyday world of the carvers.

In Chapter 7, I discuss the three dominant themes in the rock art in more detail and what they can tell us about the desert societies. In the following chapter, I examine how the motifs and scenes were produced through the production traces and how people interacted with the rock art through its consumption traces.

Chapter 5

Traces of production and consumption

5.1. Introduction

This chapter focuses on how the engraved images came into being - their production - and what happened to them afterwards - their consumption. How were the petroglyphs produced? According to which techniques and in which sequence? Subsequently, is it possible to detect traces of interactions between later consumers and the carvings? Did people ignore them, destroy them, or modify them, and in what way? These questions are addressed in this chapter through a two-part study. The first focuses on the production traces, such as the production techniques, the *chaîne opératoire* of carving, and the form and style of the Jebel Qurma figures. The second part of this chapter studies the traces of consumption, including effacement, superimposition, modification, and the act of accumulation. I include some observations about the Safaitic inscriptions and how they compare to the rock art, but for a detailed description of the inscriptions' production techniques and style I refer the reader to Della Puppa (forthcoming).

Table 5.1. The number of figures per type of carving technique or combination or techniques. 'Unknown' are those figures for which the technique type could not be determined due to a high degree of weathering or superimposition. The 'Unknown' type of figures has been excluded (see Chapter 3.4).

Technique	N of figures	%
Pounded	2469	58.0%
Incised	826	19.4%
Pecked	163	3.8%
Percussion undefined	244	5.7%
Pounded & incised	409	9.6%
Pecked & incised	64	1.5%
Pounded & pecked	11	0.3%
Percussion undefined & incised	44	1.0%
Pounded & pecked & incised	3	0.1%
Unknown	24	0.6%
Total	**4257**	**100.0%**

5.2. Production techniques

5.2.1. Carving figures

Three types of production techniques are identifiable in the Jebel Qurma rock art: pounding, pecking, and incising. The pounding technique is used the most often, with just over half of the figures being made solely by pounding (Table 5.1, Figure 5.1). Incised figures are the second most common, making up 19%

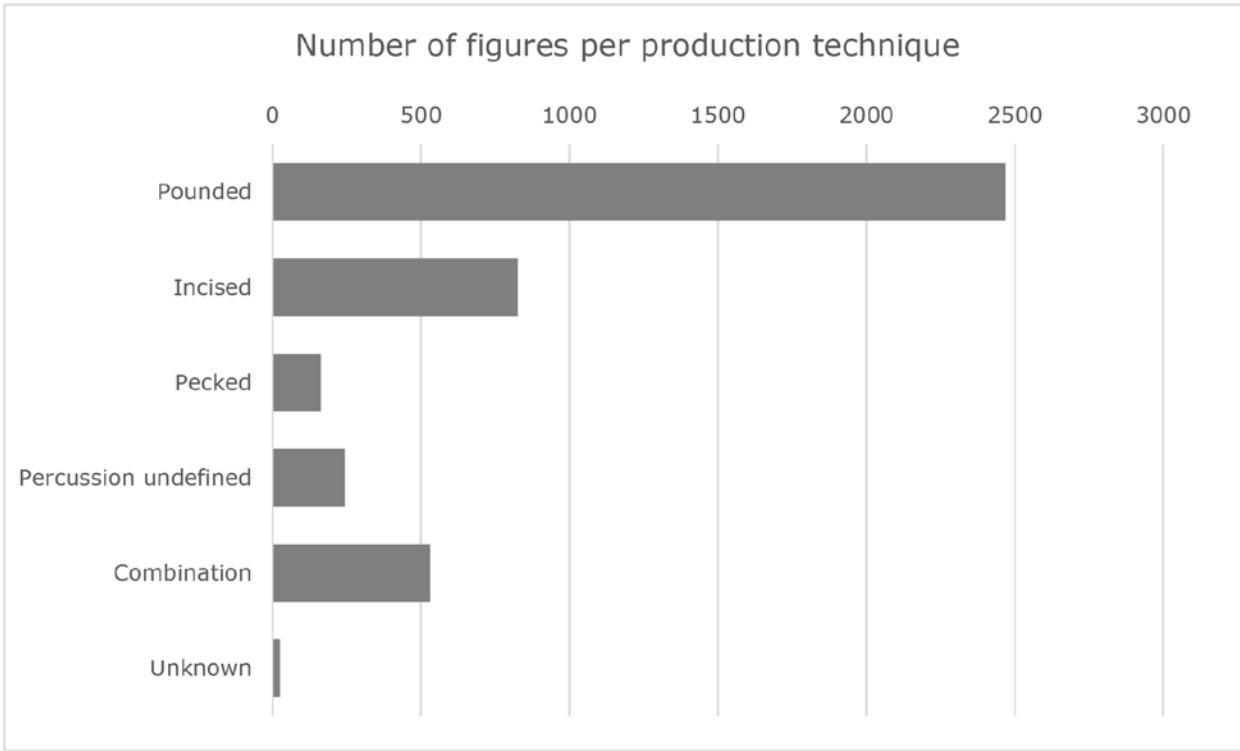


Figure 5.1. The frequency of figures made by pounding, pecking, and incising technique and a combination of two or more technique.

of the corpus. Pecked figures are rare; they represent only 4% of the rock art figures. A further 244 figures (6%) were also made using percussion technique, but it could not be determined whether they were pounded or pecked. There is a total of 531 figures (12.5%) that were made using a combination of techniques. A combined technique of pounding and incising is most common. Other combinations add up to only a very small percentage of the corpus of figures. It is interesting to note though that there are three figures carved by pounding, pecking, *and* incising (Figure 5.2).

Figure 5.2. This male dromedary camel has an incised outline, ears and tail. The front part of the figure was pecked, but the hind body was pounded (QUR-839.40).

The combining of one or more techniques occurs in three different ways. First, there are figures where one technique has been used to carve the whole and another technique has been used to add details to the motif. For example, the majority of dromedary camels were made by percussion technique, but often have small incised hairs on their head, neck, tail, and/or hump (Figure 5.3). Similarly, carnivorans' claws might be incised, various animals have incised ears, and a rider's spear and reins are often incised. In these cases, the incision technique was clearly used to create details that would be difficult with percussion technique. Second, in the combined figures of equids or dromedaries with riders, the rider is sometimes incised while the animal is pounded or pecked. This technique may have been used to be able to use a finer technique to create the smaller rider. Conversely, it may have been used to place visual emphasis on the animal, as it stands out more than the rider due to the use of another technique. Lastly, one technique has sometimes been used to create the outline of the image and another to fill it in, suggesting a multi-staged carving technique. I discuss this further below in § 5.2.3.

The use of outlines is an interesting phenomenon in the Jebel Qurma rock art. Some figures consist of only an outline (e.g. Figure 4.22a). Approximately 21% of the rock art images have been carved in this way (Table 5.2). However, the majority (69%) is filled in, even though this was likely a more time-consuming technique. A total of 200 figures (5%) have been partially filled in. Of these, only 14 can be identified as unfinished carvings. The rest appear to have been deliberately carved so that some parts of the figure are left 'blank'. In zoomorphic figures, often only the feet or hooves are depicted as an outline while the rest of the body is filled in (Figure 4.18). There are also a number of interesting zoomorphic figures where 'gaps' have been left in the head or body, which is discussed further in § 5.3.3. In general, the anthropomorphic figures are often only partially filled in; either the body is only an outline and the head is filled in or vice versa (Figure 4.4a, Figure 4.6c). The exception is the women figures. It is notable that in the 'equid with rider' figures, it is often the equid that is filled in completely, while the rider consists of only an outline or has a line pattern on him/her (Figure 4.96).

Figure 5.3. A pecked dromedary camel with thinly incised hairs on his hump (close-up top right) and on his tail (close-up bottom right) (QUR-307.5).

Table 5.2. The number of figures that have been filled in, partially filled in, or left as an outline during the carving process. The figures for which this could not be established due to weathering, effacement, or superimposition have been categorised as 'unknown'.

Structure	N of figures	%
Filled in	2935	68.9%
Outline	901	21.2%
Partially filled in	200	4.7%
Unknown	221	5.2%
Total	**4257**	**100.0%**

Comparing the production techniques of the images with the inscriptions reveals a lot of similarities. In total, 40% of the texts are engraved using the pounding technique and 22% using incisions (cf. Della Puppa forthcoming). Pecked inscriptions are not common, although slightly more than in the rock art corpus, making up 14% (cf. Della Puppa forthcoming). The combination of techniques occurs less frequently in the corpus of inscriptions; only 4% of the texts were made using more than one technique (cf. Della Puppa forthcoming.). In general, the same types and frequencies of technique use are thus discernible in the inscriptions and rock art figures. The only noteworthy difference is the more frequent use of a combination of techniques for the images.

5.2.2. Carving scenes and compositions

In general, the same technique or combination of techniques has been used to engrave all of the figures in a scene. In a number of cases, some figures have been carved using a single technique and a few have been carved using a combination of techniques. For example, in a hunting scene, the animals being hunted and the archers hunting them might all be pounded, but the archers' bows and arrows are incised (Figure 4.51). In these cases, an extra technique has been used to engrave details on some of the figures. There are only a few cases where there is a clear difference in the use of technique between the figures. The majority of these are either nursing or hunting scenes. In the former, the mother camel has sometimes been made by pounding or pecking (and often incising too) and the young camel is only incised (Figure 4.18). A number of hunting scenes include an elaborately carved animal and a simpler, incised archer (Figure 3.12, Figure 4.82). In these instances, it appears that the visual emphasis is being placed on one specific figure in the scene. The incised figure is small and less visible due to the nature of the technique whereas the other figure is prominently displayed, due to the technique used, its size, and sometimes its position in the composition too.

In composite carvings of an image and an associated inscription, the same technique has usually been used for both types of engravings. The main difference lies in the use of a combination of techniques. While many of the images have been carved using more than one technique, the associated inscription was often made using only one. There is one interesting exception. In some inscriptions, the name of the author has been made with a different technique than the rest of the text. The name is usually pounded and the rest is incised as if making the name 'bold'. Interestingly, the associated image is then always pounded as well. In these compositions, the visual emphasis is thus on the image *and* the name of the carver.

5.2.3. Reconstructing the chaîne opératoire

To reconstruct the *chaîne opératoire* of carving, it can be helpful to study unfinished figures or figures where mistakes have been made (cf. Fahlander 2012: 102). In the Jebel Qurma corpus, there are 115 figures that appear to be unfinished and there is a number where mistakes appear to have been made in the carving process. Two of these figures, both dromedary camels, give important insights into the production process. One figure is a male dromedary where to the right of the figure there is an incised line that is clearly a first attempt at carving the foreleg and neck (Figure 5.4). The incision stops at the top of the neck. It appears that the carver started on an outline of the leg and neck before realising that the head would not fit on the panel. The dromedary was then instead carved more to the left. This figure indicates that the motif was probably made in outline first by sketching with thin incisions, before being pounded or pecked over. It is possible that the carver also intended to fill the camel in completely with pounding, but did not finish.

The other figure shows evidence of a similar mistake and carving process (Figure 5.5). The outline of this dromedary has been incised and in some places even made with several thin incisions, very much resembling a sketch. More than one attempt was also made on this image. Above the neck and head are a very faintly incised neck and head, as if the carver made a thin outline of the body before deciding to carve the neck lower down. Subsequently, the majority of its body was filled in with incisions, but it is clearly unfinished as the hind leg has not been carved properly. In several areas, there is also pounding on the body. It is not clear whether this was done by the original carver, but the pounding has not been finished either. I discuss the *chaîne opératoire* of this composition further below.

These two figures provide interesting insights into the production process. They indicate that an outline, or 'sketch', was made of the figure first using thin incisions

Figure 5.4. The carver made a mistake when sketching this male dromedary figure, starting too far to the right on the panel, as can be seen by the thin incision marks. Right: the original incised sketch marks (in red) are traced (QUR-186.21).

Figure 5.5. The camel figure is unfinished and a mistake was made in the initial sketch. The original incised outline of its head and neck is barely visible (left), unless viewed from very close or traced (right in red). The inscription refers to 'the young she-camel' (QUR-137.41).

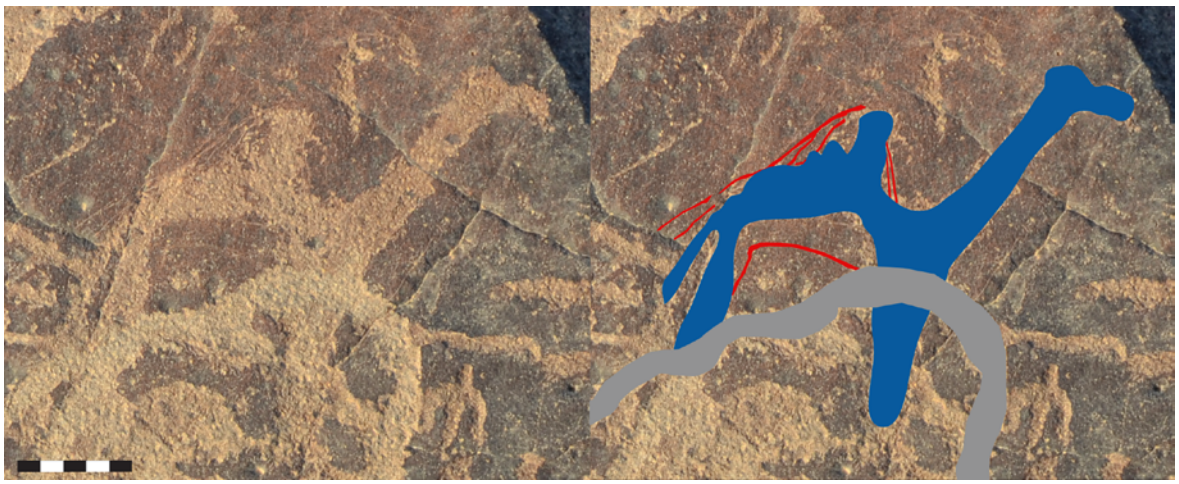


Figure 5.6. An unfinished dromedary figure. Right: tracing of the carving marks. The incised 'sketch' marks are clearly visible around its hump, tail, and abdomen (red). The carver began pounding the figure over but never finished (blue). The camel has been superimposed by a much later figure (grey) (QUR-64.73).

Table 5.3. The number of sketched figures per type of carving technique.

Technique	N of sketched figures	% of sketched figures
Pounded	19	10.4%
Incised	15	8.2%
Pecked	12	6.6%
Percussion undefined	8	4.4%
Pounded & incised	77	42.1%
Pecked & incised	25	13.7%
Pounded & pecked	4	2.2%
Percussion undefined & incised	20	10.9%
Pounded & pecked & incised	3	1.6%
Total single technique	54	29.5%
Total combined technique	129	70.5%
Total	**183**	**100.0%**

before the figure was hammered over. They are not unique in this; other figures appear to have been made following a similar process (Figure 5.6). In total, 183 figures, 4.3% of the Jebel Qurma corpus, could with certainty be identified as having been 'sketched' first (Table 5.3). The majority of the sketched figures (70.5%) have been made using a combination of techniques and usually a combination of incision and percussion technique. These incised outlines are usually hardly visible and there are only faint traces of incisions in a few places, rather than a clear outline around the whole image. This suggests that in these cases the incised outline was made first and was intended as a sketch to be hammered over. It is therefore likely that many of the other figures were made in outline first too, but that there are no traces of the sketch anymore because it was hammered over completely.

Just under 30% of the sketched figures were outlined first and then (partially) filled in using only one technique. In some cases, the outline thereby tends to more visible (Figure 5.7). In others, the outline is noticeable only on closer inspection. For example, in some pecked figures the outline is detectable because it is represented by one, continuous groove along the outside (Figure 5.8). When the figures are made by only incisions, they have a clear incised outline and are then filled in completely with incised marks (Figure 4.15a). Incising is the most time-consuming of the three techniques (cf. Fiore 2007: 156), so these figures must have taken a long time to make.

In total, only 11 of the sketched/outlined figures are anthropomorphic (Table 5.4). Four of these are woman figures, making up 33% of the woman figures in the corpus. The other 172 sketched figures are zoomorphic. The majority of these (116 figures) are dromedary camels. Other than the camel, the only other animal well-represented in this list are the members of the equid family. The horse, wild ass, and equid *unid.* together total 36 figures, 10% of the equid figures in the corpus. Of the carnivoran figures, 6% have been sketched. Only 1% of the bovids show indications for sketching. It thus seems that especially dromedary camel and the equids were made following a carving method of first sketching/outlining the figure and then filling it in. In general, these are also the most elaborate and detailed motifs (see § 5.4).

By studying these figures, it is possible to gain an understanding of the *chaîne opératoire* of carving (Figure 5.9). Images that remain unfinished or where

Figure 5.7. A lion made by pounding technique, also shown in Figure 4.55a. Right: close-up with different lighting. Here the outline is clearly visible as a pounded groove on the edges of the figure (QUR-162.2).

Figure 5.8. A pecked male dromedary camel. The outline is visible as a continuous pecked groove. Right: the clearest parts of the outline have been traced (blue). The groove isn't equally thick everywhere suggesting that different tools or edges of a tool were used (QUR-952.4).

Table 5.4. The number of sketched figures per type of motif. Zoomorphic figures have been grouped by the categories described in Chapter 4.

Motif	N of figures	% of motif type
Anthropomorph	7	2.3%
Woman	4	33.3%
Bovid	4	1.0%
Carnivoran	9	5.6%
Dromedary camel	116	7.8%
Equid	36	9.7%
Ungulate	4	2.3%
Quadruped	1	0.3%
Zoomorph unid.	2	2.6%
Total	**183**	**4.3%**

mistakes have been made provide valuable insights into the production process. They show traces of the steps the carver took to create the final image. One sequence consisted of the creation of a sketch using thin incisions, which was subsequently pounded or pecked over. In these cases, it appears that the original sketch was not meant to be visible in the final image. The other sequence was the carving of an outline, which was then filled in, rather than hammered over. In these cases, the outline is still visible and is part of the image. Although deliberate sketch marks and outlining could only be identified in a small percentage of the corpus, it is possible that many more figures were made according to this process, but that the incised sketches have been hammered over completely. This *chaîne opératoire* of carving suggests an element of planning, which may have taken on various forms.

In composite carvings of image and text there are strong indications that the image was usually carved first. In most compositions, the inscription curves around the small elements and contours of the image or is carved in the space in between parts of the figure, suggesting it was carved last (Figure 5.10). There are a few possible exceptions; for example, Figure 5.5 shows an unfinished camel figure, but the text referring to it has already been carved. One possibility is that the inscription was pounded first, whereafter the camel was sketched, filled in with incisions, and lastly the carver began pounding it over, but never completed the figure. Another explanation is that the figure was sketched first and then the inscription was pounded. The carver then continued carving the camel, but never finished it. This would explain why the inscription follows the contour of the dromedary's hump. Lastly, it is also possible that the carver sketched the camel and began filling it in, but did not complete the carving. Subsequently, someone else added their own inscription and began pounding over the camel with the same technique, but did not finish it. This would also explain why the inscription curves around the image and why the camel has been lightly pounded over in some parts even though the legs are not completed. None of these descriptions of the process can be verified, but the last one appears to best explain the various elements of the composition.

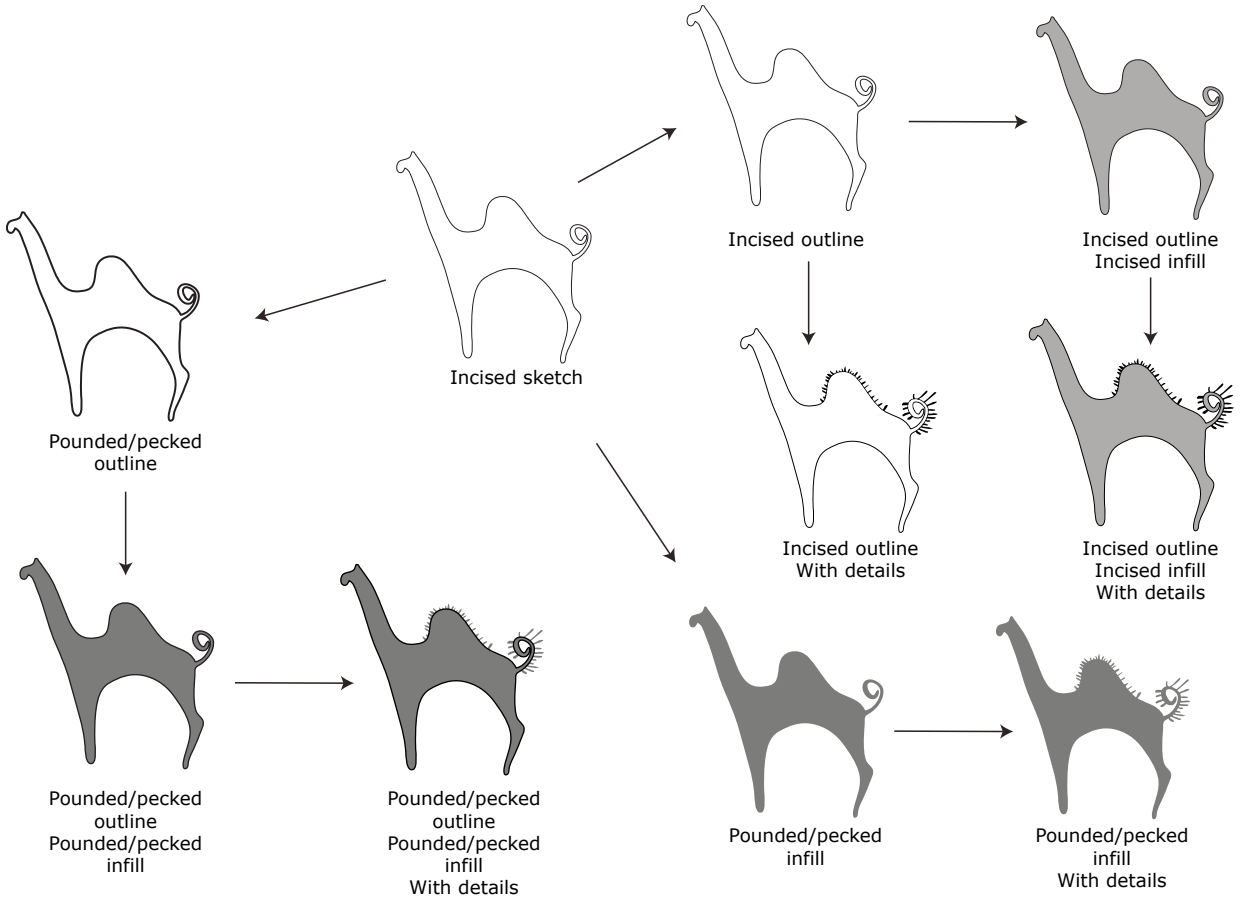


Figure 5.9. Diagram showing the various possible *chaîne opératoires of and techniques* for carving a rock art figure. Figures can be carved according to the entire process from incised sketch to filled in with details or start/end at one of the various stages.

Aside from this case and a few others, most compositions indicate that the process involved first carving the image and then the inscription. For the scenes, it is more difficult to determine which figures were carved first, especially in scenes with a large number of figures. In scenes with only two figures, it is possible that the figure on which the visual emphasis is placed was carved first. For example, in the above-mentioned hunting and nursing scenes whereby one figure is more prominent than the other, it is likely that this figure was engraved first, setting the stage for the whole composition.

5.2.4. Carving tools

The surface rock is an important factor determining which tools could have been used to make the carvings. All of the textual and pictorial engravings in Jebel Qurma except two are carved into basalt rocks (see Chapter 3). Basalt is a medium-hard rock, which scores a 5-6 on the Mohs scale of hardness. To carve into it, one would need a tool that is equally hard or harder. Basalt, quartz, and flint are the rock types readily available in the Jebel Qurma area. In regards to hardness, all three could, in theory, be used to engrave into basalt. Rock art experiments on basalt in North America demonstrate that to peck an image, chisel-stones (the tool placed against the rock) made from the more elastic quartz or quartzite had a significantly longer use-life than the more brittle basalt and flint (Keyser and Rabiega 1999). It is thus possible that the rock art producers in Jebel Qurma used hammer-stones and chisel-stones made from quartz, probably fabricating them into a useful tool first and then possibly re-shaping them during the carving process. Various studies and experiments show that it is necessary to continuously re-shape the tool while carving; it makes the tool last longer and makes it easier to carve the desired shape (Fiore 2007; Lødøen 2015). For the incision technique, the carvers may have used different tools. Flint is sharp enough to produce the thin incision marks and may therefore have been used. It is also possible that the carvers used metal tools. The disadvantage of metal is that it cannot easily be re-sharpened or re-shaped when it wears down. The incision technique wears down the point of the tool especially quickly on rock surfaces with a hardness of 5 or higher (Fiore 2007: 156). Metal tools would therefore not be the most efficient option.

To confirm these hypotheses and make more detailed observations about the carving tools, one would ideally carry out rock carving experiments to reconstruct

Figure 5.10. Compositions of rock art and inscriptions, which, like most composite carvings, show evidence of the image being carved first. a) The inscription forms a full circle around the dromedary camel (QUR-215.59). b) A hunting scene showing an archer hunting a male oryx. The inscription refers to 'the bull' and curves around the body of the oryx (QUR-2.183). c) A large dromedary camel that has been carved to fit the contour of the rock panel. The inscription has been carved in between the neck and hump and in between the legs of the camel (QUR-683.35). d) An equid, probably a wild ass, with several inscriptions carved around it (QUR-2.146).

which tools might have been used for the different techniques and styles. Additionally, a study of the find materials found at carving sites would be helpful to determine if any of them could have been carving tools. Both investigations were beyond the scope of this study but will hopefully be carried out in future research and provide new insights. Based on this brief discussion, it is currently possible to say that it is likely that the carvers were able to use the rock types available in the region to produce the rock art. These tools would have required fabrication and continuous maintenance to produce the engravings. Furthermore, many of the carvings would have required a significant time investment to produce. As a hard rock, basalt is not easy to carve into and substantial pressure and thus time would have been needed to carve properly. This would have varied depending on a number of factors, such as the technique, the form of the composition, the level of detail, and the skill of the carver. For example, incising is the most time-consuming technique and,

therefore, the carvings made by filling in entirely with incisions would have especially cost a lot of time to engrave. Similarly, carvings made by sketching first, then filling in, and finally by adding small details such as hairs and tack would have taken more time to produce than a simple figure made only with a lightly incised outline.

5.3. Style

5.3.1. Introduction

From the analyses of the production process it is evident that there are several variables that determine the end appearance of a petroglyph figure, scene, and composition. The technique or combination of techniques used, the way the technique was employed (skill and execution), the use of a clear outline or a sketch, the extent of filling in, the level of detail and the sequence of carving all influence the final image. For scenes and compositions, differences or similarities contribute to the overall form; for example, whether the same technique has been used for all of the figures. All of these aspects contribute to the overall complex notion of 'style', which still remains one of the most important tools within rock art research to determine social practices, encoded identity, and regional variability (Domingo Sanz 2009, 2012). Here I make a few observations about the style of the Jebel Qurma rock art based on the results presented above on technique, the use of patterns on figures, and the overall form of figures and scenes. I focus on the anthropomorphic and zoomorphic figures, with an emphasis on a comparison between the two.

5.3.2. Technique

The technique used to carve an image has a clear effect on the appearance of the figure, but it is as much influenced by how the technique has been employed and the process by which it has been made. Pounding does not allow for the same precision as pecking and generally results in less 'clean' lines. Pecked figures tend to look more skilful and 'neater' to a certain extent (e.g. Figure 5.8 and Figure 3.12). That the majority of the Jebel Qurma figures are pounded does not, however, imply that they are simple or crude in form. It depends largely on how the technique is employed. For example, some pounded figures have clearly been well executed (Figure 4.15e). Likewise, the form of the incised figures also depends on more than technique alone. Those consisting of only a thinly incised outline can appear simple or skilfully elaborate due to the ability to be very precise (Figure 4.6d vs. Figure 3.13).

It is difficult to make any quantitative statements about skill and execution, but it is clear that these factors play a role in determining the form of the rock art figures. Additionally, certain choices made during the production process also affect the end result. As described above, the majority of the figures have been filled in completely, but some have been filled in only partially and others consist of only an outline. The final appearance thus differs depending on whether a figure is filled in (partially) or not, which technique was used to do so, and whether more than one technique was used. The use of an outline or sketch as a first stage in the production sequence would have had consequences for the end result as well. If the carver used a rough sketch or a clear outline first before completing the figure by filling it in, it would have made it possible to 'plan out' the image. The carver could thereby engrave more precisely and according to a specific design. All of these choices made or conventions followed during the production process affect the final form of a figure. Similarly, the confluence of these factors in the various figures that interact in a scene influences the appearance of and visual emphasis in the scene.

5.3.3. Patterned figures

Besides added details such as hairs or gender/sex, some figures have been elaborated upon further with what could be called patterns or 'decoration'. There are two broad types: patterns made by adding marks to the figure and patterns made by leaving gaps in the filling of the figure. The latter consists of figures where parts have deliberately been left 'blank', i.e. not filled in (Figure 5.11). The added marks take on one of two forms; they are either lines running in only one direction (Figure 4.93) or lines running in two directions, thereby forming a check pattern (Figure 5.12). In total, there are 125 figures with a pattern, the majority of which are zoomorphic figures (Table 5.5). Of the anthropomorphic figures, 10 are riders, making them the most frequently patterned type of anthropomorph. There is one example of an equid figure that has two different types of patterns (Figure 5.13).

Lines are the most common type of pattern, occurring on 17 anthropomorphs and 56 zoomorphs. The check pattern and gaps rarely occur on anthropomorphic figures, but they occur an almost equal amount of times in the zoomorphic figures. Of the different zoomorphic motifs, the bovid motifs are most frequently depicted with a pattern (Table 5.6) (Figure 4.90). Just over 10% of all bovids in the corpus have a pattern, a relatively high number considering that only 3% of all zoomorphs are depicted with a pattern. In absolute terms, patterned dromedaries and equids occur equally often, but as a percentage of the total number of these motifs in the corpus, patterned equids are more common. There is a small percentage of carnivorans and ostriches depicted with patterns.

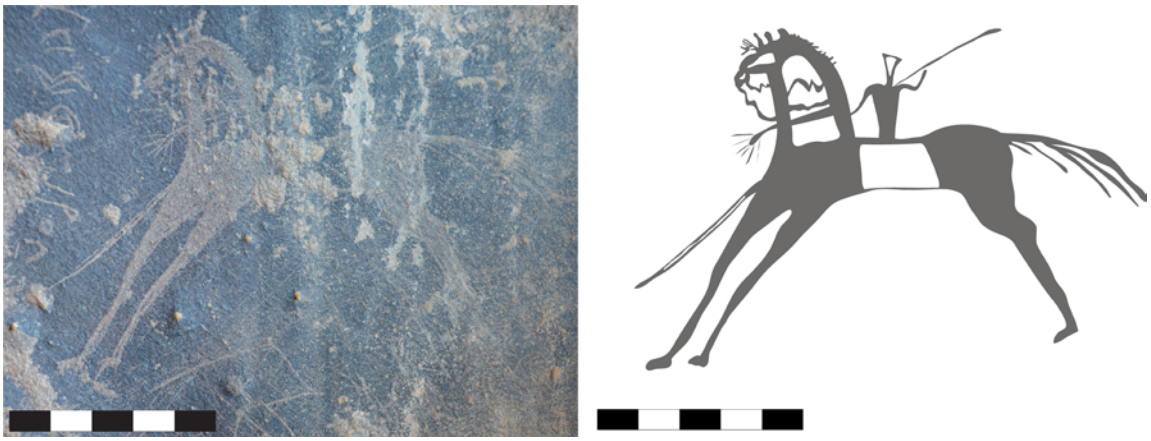


Figure 5.11. A skilfully depicted equid and rider. The equid has been made by incising and pecking and has two 'gaps', sections left deliberately blank, in the in-fill of its body (QUR-64.6). Right: tracing of the figure.

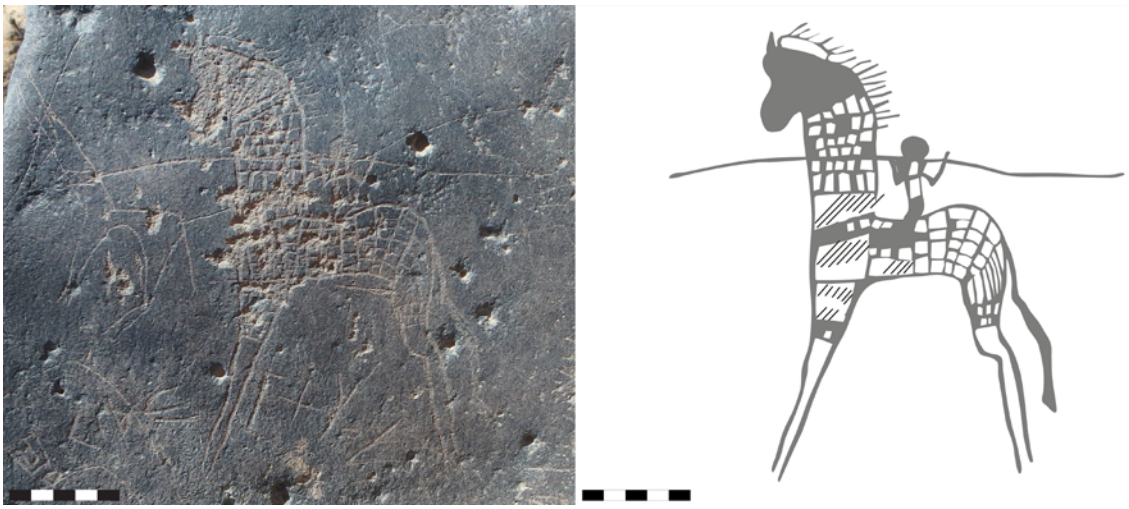


Figure 5.12. In this hunting scene of a rider on an equid hunting an oryx, the finely incised equid has been filled in almost entirely with a check pattern and it has been pounded. It is depicted with a dish-shaped face, a trait charcteristic of the Arabian horse breed, but the inscription refers to 'tn ('she-ass'), suggesting the equid is a horse-donkey hybrid (QUR-176.17). Right: tracing of the equid with rider. Dashed lines represent parts that are not visible due to effacement.

Figure 5.13. The equid has two patterns on its body: gaps and lines. The rider also has lines in his/her body. The zigzag reins and the feather-like tail are interesting details (QUR-551.56). Right: tracing of the figure.

Table 5.5. The number of anthropomorphic and zoomorphic figures made with different types of patterns.

Type of patterns	N of anthropomorphs	N of zoomorphs	Total N of figures
Lines	17	56	73
Check	1	21	22
Gap(s) in filling	1	29	30
Total	**19**	**106**	**125**

Table 5.6. The number of patterned figures per type of zoomorphic motif. Figures have been grouped by the zoomorph categories described in Chapter 4.

Motif	N of figures	% of motif type
Bovid	41	10.2%
Carnivoran	6	3.8%
Dromedary camel	24	1.6%
Equid	25	6.7%
Ostrich	6	1.8%
Ungulate	3	1.7%
Quadruped	1	0.3%
Total	**106**	**3.2%**

Figure 5.14. A rider with either intricate headwear or hair on his/her head. The body has also been filled in with a check pattern (QUR-215.71).

It is unclear what the patterns are meant to represent. The lines on riders and anthropomorphs on foot could portray clothes or armour. The patterns depicted on zoomorphs present an enigma. On some figures, they could represent coat markings, for example, the typical markings on the head of the Arabian oryx (Figure 4.24b). However, this explanation does not hold up for the majority of the figures, as most patterns do not resemble coat markings or do not match the coat markings of that animal. For example, the lines carved on many bovids do not resemble the subtle markings that ibex, gazelle, or oryx have. Similarly, the check patterns do not resemble any known coat colours or markings. Some of patterns carved on equids with riders and on dromedaries could represent trappings or even armour. However, again, this does not explain the cases in which the patterns cover the entire figure (Figure 5.12). It is therefore more likely that most of these patterns represent a type of 'decoration' of the figure itself. They may have had an aesthetic function or a more complex symbolic meaning. Patterning was mostly used for zoomorphic figures and, of these, the bovids were most often depicted with patterns. Additionally, different patterns were used for different animals, with checks and gaps used most frequently for equids and dromedaries and lines for bovids.

5.3.4. The overall form of the figures

Zoomorphs are the clear majority in the corpus, as shown in Chapter 4, and they are also the most elaborate figures in the rock art. Anthropomorphs tend to lack detail, with the exception of the rare woman motifs. The latter are usually large, very detailed, and well executed. In contrast, archers, anthropomorphs with other weapons, people leading animals, and even riders can almost be described as 'stick figures', usually consisting of incised or thinly pounded lines. They rarely have details on their body or heads and even gender is rarely indicated. There are a couple of exceptions. The archer facing two carnivorans in Figure 1.6 features more detail than most due to the very thinly incised quiver with arrows on his or her back and the depiction of a face and feet. The other exception is one rider on an equid (Figure 5.14). This rider is also quite simple, consisting of only an incised outline. However, the rider's body has been filled in with a check pattern and his/her head has been elaborately carved, depicting either hair or intricate headwear. Compared to other riders, this figure is quite detailed.

In general, however, the anthropomorphic figures contrast with the zoomorphs, which tend to be larger and filled in completely. They often have added details, such as hairs and sex, and were more often made using multiple steps. Within the corpus of zoomorphic motifs, there is some variation. Ostriches are the most minimalist motif, usually represented by only a zigzag line. There is one exception: a flock of ostriches whereby the front ostrich is depicted in intricate detail, with very thin incisions representing its feathers (Figure 4.61).

This is a rare exception though, as most ostriches are highly stylised. Canids tend to also be quite simple and lack detail. In comparison, the lions are more elaborate. They are generally depicted with thick heads and necks, probably representing the mane. Their mouths are often open and their legs are bent as if in a pouncing position. Their claws are frequently depicted as well.

The bovids vary in complexity and detail. The majority of ibex are quite simple, represented primarily by their long, scimitar-shaped horns. There are only two panels that feature ibex depicted with the ridges on their horns, the characteristic trait of the Nubian ibex (Figure 4.25, Figure 6.7). The oryx motif varies in form. Some are quite stylised, with a simple 'bovid-like' body and only the long, straight horns and perhaps a small hump behind the neck to discern it from other bovids. Some are more elaborate, featuring a more prominent hump, the typical tufted tail, and a clearer body type (Figure 1.7). It is interesting that, as a group, bovids are most frequently depicted with patterns, a notable addition of detail.

Equids and dromedaries are overall the most detailed and well-executed zoomorphs. Aside from a few exceptions, their form is generally quite elaborate, revealing a skilled process of carving. They have often been made using a combination of techniques, with incisions used to add hairs or other details. Both types of motifs have also sometimes been sketched prior to carving. This would have allowed for more precision in the carving process so it may be why the equid and dromedary figures often appear well-executed. As discussed in Chapter 4, the equids vary in appearance. However, in general, the equids being ridden have a specific form. They have a very slender middle, a powerful, curved neck, and a small, fine head. Their appearance is thus quite elegant. Interestingly, so is the wild ass motif. Their head is slightly broader and their ears bigger, thus looking more ass-like. However, their build tends to be slim with an emphasis on the slender middle and the powerful hindquarters. This style of carving equids might have been used to emphasise features admired by the Safaitic carvers.

In the dromedary camels, the most striking feature at first glance is the exaggerated hump, which in the majority of camels makes up a third or more of the camel's total height. Its shape varies between three recurring shapes: round, rounded triangular, and a shape that can best be described as a bell curve. The first shape is the most common. Another typical feature of all of these dromedary figures is the position of the head and neck. They are almost always depicted with a long, straight neck, holding their head up high. Additionally, the body tends to be curved and quite short, paired with a concave abdomen. However, there is a recurring variation on this whereby the body is curved but elongated, paired with a straight abdomen. These features and general appearance of the dromedary depictions result in a motif that in many ways is not naturalistic and has features and proportions contrasting with that of a real dromedary (cf. Brusgaard forthcoming). A real dromedary camel's most characteristic feature is probably its hump. It is also one of the features distinguishing it from its cold climate counterpart, the Bactrian camel. The dromedary's hump is generally quite small and is only pronounced when vegetation is abundant, allowing for a large storage of fat (Gauthier-Pilters and Dagg 1981). Even when this is the case, the hump never grows very large either in width or height in relation to the camel's body (Gauthier-Pilters and Dagg 1981: Pl. 5). The hump can disappear almost altogether when food is scarce (Gauthier-Pilters and Dagg 1981: 71). In comparison, the petroglyph camels' humps are often hugely exaggerated. In one case, the camel's hump was even modified to be even taller (Figure 5.15). This would suggest that a large hump was

Figure 5.15. The camel's hump has been enlarged, presumably by the same carver because the same technique and style has been used (QUR-980.8).

a desirable feature in a (rock art) camel or a feature that the carvers wished to emphasise in the depictions.

Real dromedaries also differ in the position and shape of their neck, the shape of their body, and their overall proportions. A dromedary generally always holds its head in the extension of its body when standing or on the move. Its long neck has a characteristic curve in it. The tall, straight neck portrayed in the camels in the rock art is usually only seen in real camels when they are stretching their necks to reach vegetation above them (cf. Gauthier-Pilters and Dagg 1981: 34, Pl. 17). The dromedary's body is long with a convex ('hanging') abdomen and a convex back. The latter feature allows the camel to carry a heavier load than a horse (Gauthier-Pilters and Dagg 1981: 109). As a result of its long body and its low, extended neck, the camel's body is longer than it is tall. In contrast, the carved camels of Jebel Qurma have a relatively short body and although their backs are convex, their abdomens are almost always either straight or concave. In combination with the long, straight neck, this way of depicting camels produces a dromedary that appears almost as tall as it is long.

A final qualitative remark about the form of the camels provides an interesting contrast to the seemingly 'unnaturalistic' depictions. Although their general form deviates from that of a real camel in various aspects, there are a number of specific anatomical details often added to the carvings of the dromedaries. For example, the muzzle is often depicted as curving down in the typical hanging lip of a camel (Figure 5.2). Additionally, a number of the camel have been depicted with hair on their tail, hump, neck, head, throat, or a combination thereof. The hairs on the tail, hump, neck and head are represented by small incised lines while the throat hairs are represented by a pounded 'lump' on the underside of their neck. All dromedaries have hair on their tails, but they can also grow a substantial amount of hair on the rest of their body in the winter to both protect them from the cold and help dissipation of body heat (Gauthier-Pilters and Dagg 1981: 72). These 'hairy camels' may therefore be depictions of camels in the winter. However, it must be noted, not all camels grow hair in the winter so their absence does not mean the figure represents a camel in summer.

There are thus naturalistic and unnaturalistic qualities to the dromedary depictions. Overall, there is a particular standard appearance, which includes the long, straight neck, the exaggerated hump, and a slightly curved body. A few different variations on some features occur, such as the hump and abdomen shape, and other features are present in only a part of the camel corpus, such as the depiction of hairs. However, these variations are not infinite and it is clear that there were one or more specific styles according to which these images were made.

5.3.5. Scenes

The scenes also appear to have been made according to a particular form. In general, like in the entire corpus, the anthropomorphs lack detail, especially in comparison to the zoomorphs in the same scene. Within the hunting scenes, there is some variation differences due to technique and dimensions. The large, cooperative hunting scenes featuring several anthropomorphs, possibly several dogs, and the prey usually depict each figure in approximately equal dimensions and level of detail and using the same technique (e.g. Figure 4.90). The same is true for scenes where several canids are hunting other zoomorphs (e.g. Figure 4.91). Scenes featuring one canid or felid hunting one or more animals are also similar (e.g. Figure 4.87).

The most variation can be found within the scenes depicting solitary hunting by anthropomorphs. When the hunter is an anthropomorph on horseback, the rider is small and lacks detail, but the figure as a whole possesses the visual prominence in the scene. The equid with rider is larger than the prey, more detailed, and compositionally the centre of the scene. In several of these scenes, the equid also has a pattern on it (e.g. Figure 5.12 and Figure 4.89). These features place visual emphasis on the hunter and, especially, the equid. In contrast, in scenes where a single archer is hunting a wild ass, the visual emphasis is on the prey. Compositionally, the wild ass is dominant in these scenes, placed centrally on the panel (Figure 4.38, Figure 3.12). Additionally, they are often much larger than the archer and the techniques used often make the wild ass stand out. For example, in Figure 3.12 the wild ass is large and has been skilfully pecked, while the archer is small, simple, and incised. Similarly, in Figure 6.9 the archer is barely visible from a distance because it is thinly incised, but the wild ass is large and pounded. The combination of these factors draws the eye to the wild ass - the prey - rather than the hunter. This method for creating hunting scenes may have been used to emphasise the significance of the prey or the rider and mount. Conversely, it may have been used to create a narrative in the scene, for example, by 'hiding' the hunters on foot from the prey in a scene. This is discussed further in Chapter 6.

There appear to be only two main variations in the combat and conflict scenes. In the more general fighting scenes, most of the figures are of equal size and made with the same technique. Compositionally, all figures are equally emphasised (e.g. Figure 4.46). In the raiding scenes, there is a clear visual emphasis on the object of the raid: the dromedary camel.

It is usually in the centre of the scene, it is much larger than the anthropomorphs around it (not in line with real-life proportions), and it has often been made with a different technique. For example, in Figure 4.95 the anthropomorphs consist of only an outline while the dromedary is filled in and in Figure 5.16 the camel is pounded and the anthropomorphs are incised. The exceptions are raiding scenes where an equid with rider is involved too; then the equid is as visually dominant as the dromedary in terms of technique, composition, and detail (Figure 4.96). The enigmatic scene featuring the woman motif also forms an interesting exception (Figure 4.2). The woman is the largest figure in the scene, even larger than the equid with rider. However, both figures are the focal point of the scene, have been carved using the same combination of techniques and display an interesting level of detail with patterns on the rider, equid, and woman. In contrast, the rest of the figures in the scene are very small and have been incised only in outline. There are thus layers of visual emphasis in this scene through which the camels, equids with riders, and women are highlighted.

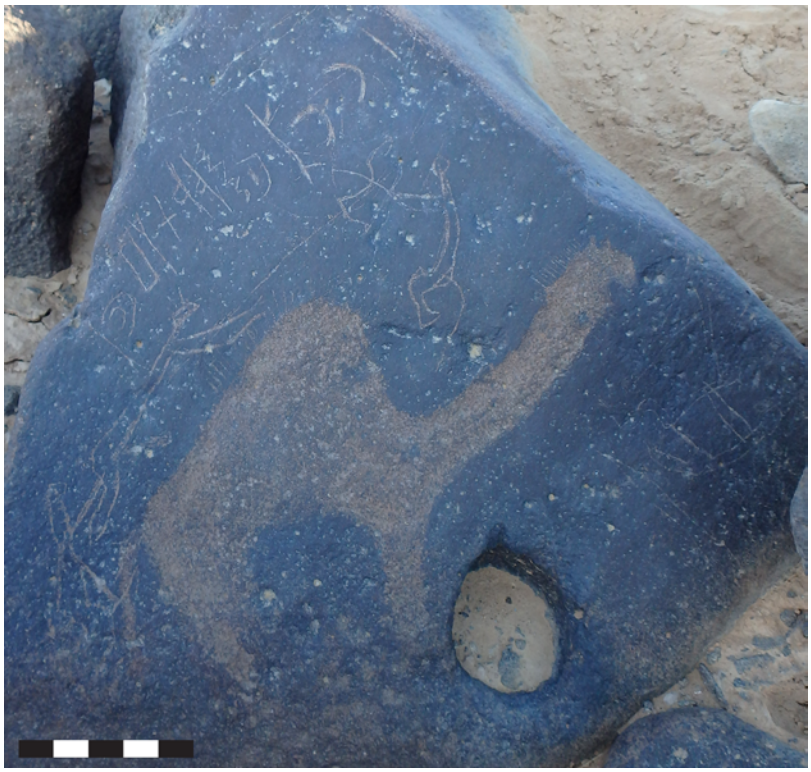


Figure 5.16. A raiding scene in which four people, three of which have bows and arrows, fight each other around a dromedary camel. The camel has been pounded while the people have only been incised, making the camel the visual focus of the scene (QUR-980.8).

In the leading scenes the emphasis is also on the camel. The anthropomorphic figures tend to be simple, incised, and consist of only a (partial) outline, while the camels are large, detailed, filled in, and made with percussion technique or a combination of techniques (Figure 4.97). In nursing scenes, the difference is more apparent. The mother animal is always large and often detailed and made with a combination of techniques. In contrast, the infant animal tends to be small, lack any detail, and made using only one, simple technique.

5.3.6. A Jebel Qurma style?

There thus appear to be some distinct patterns in the style of the Jebel Qurma figures. It is currently difficult to discern whether this style is specific to Safaitic rock art or more specifically the Jebel Qurma rock art. To do so in future research, two things are needed. Firstly, more qualitative and quantitative analyses need to be carried out on the style of the Jebel Qurma figures. Secondly, more detailed and systematically collected datasets from other regions in the *harra* are needed to be able to compare the occurrences of different types of styles.

However, two preliminary observations stood out while assessing the rock art. On the one hand, the style of the Jebel Qurma dromedary camel figures differs significantly with that of a few select dromedary camel carvings in other Safaitic corpora. There are dromedaries that are more naturalistic-looking, exhibiting a less exaggerated hump, a more elongated body, and often the typically curved camel neck (Figure 5.17). Additionally, there is a contrast in technique as well; the dromedaries are generally incised and consist of only an outline. Interestingly, these figures are associated with inscriptions in the so-called 'fine script', a type of inscriptions style rarely found in Jebel Qurma (cf. Della Puppa forthcoming). One of the few fine script inscriptions from the Jebel Qurma region is associated with a dromedary camel figure that resembles the 'fine script camels' in form. However, the technique is typical of the Jebel Qurma corpus: an incised outline and then filled in by pounding (Figure 5.18). This may therefore be a 'hybrid' in style. Further research is needed to determine what these differences in style imply, but there are indications that the differences in the script styles were temporal (cf. Della Puppa forthcoming).

On the other hand, many of the known Safaitic pictorial carvings accessible in publications and the OCIANA database appear to resemble the Jebel Qurma carvings in style. The range of motifs and scenes is the same

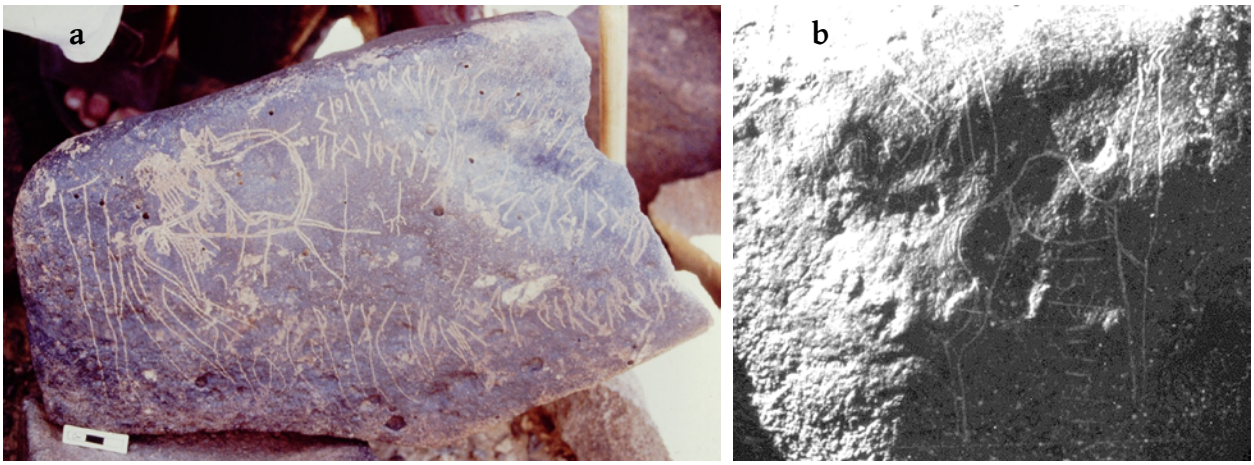


Figure 5.17. Examples of camels associated with inscriptions in the 'fine script' style. a) MS 44; the provenance is unknown, b) ISB 425; the carving is from Jordan. Photos: OCIANA

and the form of the people and animals seem similar as well. There thus appears to be a fairly consistent, dominant style with some significant variations. This is only a very preliminary, qualitative assessment and further research on more complete datasets is needed to confirm this. It is noteworthy that there also appear to be a number of styles in the form of the inscriptions as well, with a more common form and several less common ones (Della Puppa forthcoming). Like with the fine script inscriptions and camels, the differences in style in the inscriptions may correspond with those in the rock art. Future research on the style of the Safaitic carvings should therefore include a comparison between the texts and the images.

5.4. Effacement

Effacement is one of the clearest forms of consumption in the rock art. In general, it is not very common among the petroglyphs. In total, 289 individual figures have been effaced, only 6% of the corpus (Table 5.7). Of these, by far the most are zoomorphic figures: 267 figures. Only 14 anthropomorphic figures, and six abstract motifs have been effaced. In relation to the total number of each type of figure in the corpus, zoomorphic figures are also the most frequently effaced; 8% of the 3310 zoomorphic figures are effaced, compared to 4% of the anthropomorphic figures. All types of zoomorphic motifs have been effaced at least once, but some more than others. In absolute terms, the most effaced animal is the dromedary camel, followed by the ostrich. However, these are also the most frequent species in the rock art. Therefore, looking at the effaced figures as a percentage of the total number of figures in the corpus provides a clearer picture of which animal is 'most targeted' (Table 5.7 right column). This reveals that the lion is the most frequently effaced motif; 26% of the lion figures in the corpus have been effaced (Figure 5.19, Figure 4.56). They are followed by the oryx (18%) and then the ibex (17%) and bovid motif (16%). In this analysis, equids and dromedaries with riders were counted separately as it is often specifically the rider that is effaced in these figures.

Figure 5.18. This inscription has been made in the so-called fine script style and refers to 'the she-camel'. The associated camel has the appearance of the camel figures from other areas in the *harra* that are also associated with fine script inscriptions. However, the technique used to make it is typical of the Jebel Qurma region: an incised outline and filled in with pounding (QUR-529.20).

There appears to be a pattern in *which part* of the animal is effaced. It is rare for the entire figure or almost the entire figure to be effaced; there is only one case of this (Figure 4.89). Instead, specific parts of the zoomorphic figure are effaced. In 136 of the 267 effaced zoomorphs, the head has been effaced, making it by far the most frequently targeted part of the figure (Table 5.8) (Figure 5.20, Figure 3.16). The legs and necks are also effaced often, although much less frequently than the head. Often more than one feature of a figure has been effaced, for example, the head and the

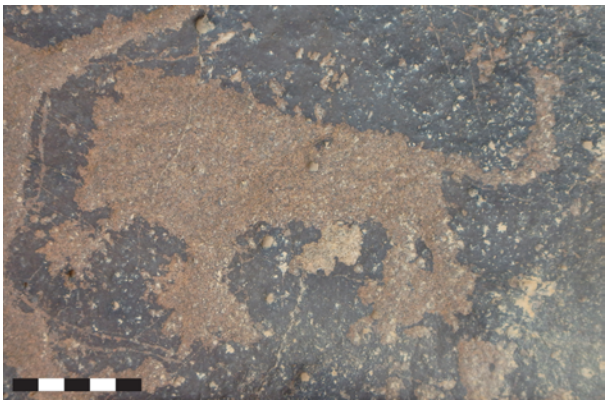


Figure 5.19. This lion's legs have been effaced (QUR-956.75).

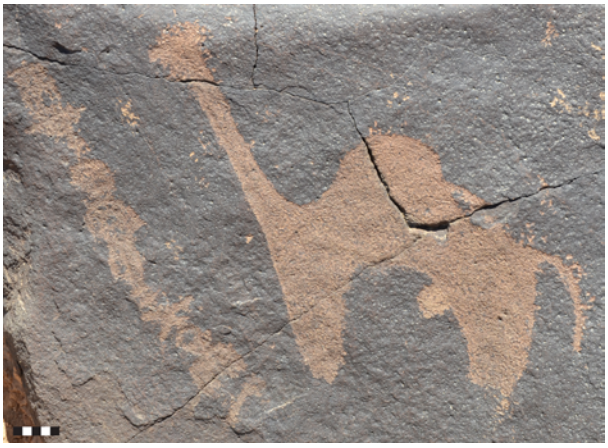


Figure 5.20. The inscription and the head of the dromedary have been effaced (QUR-2.426).

legs. In 60 figures, various parts have been effaced, such as in Figure 4.89. As mentioned above, sometimes the rider on an equid or dromedary is specifically effaced while the rest of the figure is left alone. When a bovid is effaced, it is usually the horns that are targeted.

Effacement therefore does not appear to be a common occurrence in the rock art, but it is a discriminatory practice. It is carried out more frequently on some motifs, such as the lion, and on certain parts of the figure, most notably the head. Additionally, it is notable that the practice of effacement may have been more common than the *pictorial* corpus shows. In the corpus of Safaitic inscriptions, the destruction of carvings was much more frequent. More than one-fifth of the inscriptions have been destroyed (Della Puppa forthcoming). This occurred in one of two ways. Inscriptions have been effaced, i.e. 'erased' like the rock art figures, or they have been modified with small marks in such a way that the text is rendered nonsensical. In the former case, like the effaced figures, the inscription is rarely effaced entirely, but hammered over enough to make parts of the inscription poorly visible. Both the effacement and the modifications are forms of destruction of the inscription that makes the inscription poorly legible and the original meaning lost. Sometimes one inscription has been both effaced and modified. The modification to render the inscription meaningless is a clear indication that the people who destroyed the carvings were able to read them. It is also interesting to note that, when a composition is

Figure 5.21. The inscriptions on this panel have been effaced, but the rock art figures have been left alone (QUR-2.353).

Table 5.7. Number of figures that have been effaced per type of motif.

Motif	Number of figures	% of motif total
Anthropomorph	13	4.5%
Woman	1	14.3%
Total anthropomorphs	*14*	*4.3%*
Rayed circle	3	1.5%
Set of dots	2	1.1%
Set of lines	1	2.2%
Total abstract	*6*	*1.0%*
Bovid	16	16.0%
Canid	5	12.2%
Carnivoran	2	4.2%
Dog	2	10.0%
Dromedary camel	100	6.9%
Dromedary camel with rider	4	8.3%
Equid	15	8.5%
Equid with rider	14	7.6%
Ibex	17	16.8%
Lion	11	25.6%
Oryx	17	17.7%
Ostrich	42	12.3%
Ungulate	10	5.8%
Quadruped	8	2.8%
Zoomorph *unid.*	4	5.1%
Total zoomorphs	*267*	*8.1%*
Unknown	2	0.8%
Total unknown	*2*	*0.8%*
Total	**289**	**6.4%**

Table 5.8. The different parts of zoomorphic figures that have been effaced and their frequency.

Location on figure	N of occurrences
Abdomen	1
Body	6
Head	136
Horns	20
Hump	6
Legs	31
Neck	29
Tail	14
Udders	1
Rider	6
Various	60

effaced, the inscriptions are often destroyed while the associated image is left alone (Figure 5.21).

5.5. Superimposition and modification

In the Jebel Qurma corpus, rock art figures rarely superimpose one another. For this reason, it is difficult to build a typo-chronology based on the stratigraphy of the figures. In total, only 93 petroglyphs are superimposed by another contemporaneous carving. The majority are superimposed by another pictorial carving, but 26 figures are superimposed by a Safaitic inscription (Figure 3.17). In most cases, a carving made by percussion technique superimposes an incised carving. However, when both carvings are made by pounding or pecking, it can be difficult to tell which was engraved first (Figure 4.34c). A total of 74 rock art figures superimpose another carving, of which the majority are other figures. However, 23 of these figures superimpose a Safaitic inscription and 12 figures superimpose the cartouche of another inscription. There is no detectable pattern in which figures were and were not superimposed by another carving.

Modification of (roughly) contemporary rock art is also quite rare. It is much more common for Safaitic engravings to have been modified by the later carvers of Arabic engravings and *wusūm*, as shown in Figure 3.14. In total, 66 figures have been modified after production. By far the majority are dromedary camels (Table 5.9). In a few cases, small additions have been made to the figure, such as added lines or marks on the back that could represent an added rider. However, the most common type of modification is where parts of or almost the whole figure have been re-pounded (Figure 5.22). In all cases, it could be argued that the modifications were carried out by the original producer. However, the majority of these modifications use a different technique and style. It is therefore likely that they were made by someone else. However, these modifications are dissimilar to those that were carried out on the inscriptions, described above. There the intent was to render the inscription nonsensical and thus meaningless. In the case of the modified rock art figures, the person doing it added something or re-carved it, thereby giving it a new meaning or perhaps claiming the image for themselves. This was a rare practice though.

5.6. Accumulation

The final trace of consumption that can be investigated in the rock art is the act of accumulation. I investigate this at two scales of landscape: accumulation on boulders and accumulation at sites. The first is based on the rock art data alone. The second analysis is carried out twice; first based on the rock art data and subsequently based on the rock art and inscriptions (the *composite carvings*; see Chapter 3.3.2). The analysis of the number of composite carvings per site forms the basis for the study of the spatial distribution in Chapter 6. For

Figure 5.22. The camel figure on the bottom was incised and lightly pounded. Later it was pounded over almost completely in the same style and using the same technique as the author of the pounded inscription on the right (QUR-307.18).

Table 5.9. The number of figures that have been modified per type of motif.

Motif	N of figures
Anthropomorph	1
Bactrian camel	1
Dromedary camel	46
Equid	6
Ibex	1
Lines	1
Lion	2
Ostrich	1
Quadruped	3
Ungulate	3
Unknown	1
Total	**66**

this reason, the three sites for which no GPS data was available have been excluded from this analysis. The unknown figures have also been excluded from these analyses. As outlined in Chapter 3.2, the survey method in the field was intensive and there were thorough checks for rock carvings. This means that the data used for these analyses is an accurate representation of the amount and distribution of carvings in the region.

5.6.1. Accumulation on boulders

Looking at the number of rock art compositions per boulder reveals that the vast majority of compositions were carved individually on a boulder without pre-existing carvings on it (Table 5.10). There are 1834 boulders containing only one composition. Just over 16% of the boulders are covered with between two and three compositions. Boulders with a larger quantity of compositions occur in very small numbers. There is one extreme outlier: a large boulder at site QUR-186 with 27 rock art compositions (Figure 5.23).

These results suggest that carvers rarely chose boulders with pre-existing carvings on them to carve their own composition. However, it is important to take into account the nature of the surface rock. In Jebel Qurma, the majority of boulders are small or medium-sized. There is therefore little space to add new carvings to a panel. This may have played a role in influencing how much accumulation occurred. At sites where there are very large boulders, such as QUR-186, these boulders usually contain multiple compositions. It therefore appears that the large boulders did attract numerous carvers and compositions. I discuss a few of these 'boulders of accumulation' further in the following chapter.

5.7. Accumulation at sites

Accumulation at sites can be studied by investigating, first, the number of rock art compositions per site and, second, the number of composite carvings per site. Looking at just the rock art, just under 50% of the sites in the Jebel Qurma region have less than five rock art compositions (Table 5.11). A third of the sites have between six and 19 compositions. Only a small percentage, 2.1%, has more than 75 compositions. There are thus relatively few sites with a large number of rock art figures. The distribution of rock art compositions across the different site sizes is fairly equal (Table 5.12). However, it is notable that more than 28% of Jebel Qurma's rock art compositions are found at the five very large sites.

Looking at the number of composite carvings per site, there is a large number of very small sites with between one and 15 composite carvings, making up 71% of all the

Table 5.10. The number of boulders per size class of groups of figures.

N of groups	N of boulders	% of boulders
1	1834	81.0%
2 - 3	378	16.7%
4 - 5	34	1.5%
6 - 9	12	0.5%
10 - 19	5	0.2%
20 - 27	1	0.0%
Total	**2264**	**100.0%**

Figure 5.23. The large boulder at QUR-186 with 27 rock art compositions and various inscriptions. There are more engravings on the other side of this boulder, not visible on this photo (scale bar = 50 cm) (QUR-186.33).

Table 5.11. The number of sites per size class of groups of figures.

N of groups	N of sites	% of sites
1 - 5 (very small)	147	61.3%
6 - 19 (small)	56	23.3%
20 - 39 (medium)	24	10.0%
40 - 74 (large)	8	3.3%
75 - 196 (very large)	5	2.1%
Total	**240**	**100.0%**

Table 5.12. The total number of rock art compositions in each site size class.

Site size*	Total N of groups	% of total groups
Very small	314	11.2%
Small	571	20.4%
Medium	682	24.4%
Large	433	15.5%
Very large	793	28.4%
Total	**2793**	**100.0%**
* Based on N of groups of figures in tab. 5.11		

sites (Table 5.13). The large and very large sites make up only a small percentage of the total, 1.9% and 1.3%, respectively. However, again, it is at these big sites that a large number of the region's carvings was made (Table 5.14). The four very large sites have 25% of all of the pictorial and textual carvings. The largest outlier is the site on the Jebel Qurma hill, which has 643 composite carvings. This indicates that, although there are many small sites with low numbers of carvings, the carvings concentrate especially at a small number of specific sites. This suggests that there was an accumulation of carvings in particular places. In the next chapter, I show the locations of the sites in the Jebel Qurma region, investigating whether there is a relationship between the size of the carving sites and the macro-landscape.

Table 5.13. The number of sites per size class of composite carvings.

N of composite carvings	N of sites	% of sites
1 - 15 (very small)	219	71.1%
16 - 59 (small)	59	19.2%
60 - 109 (medium)	20	6.5%
110 - 299 (large)	6	1.9%
300 - 643 (very large)	4	1.3%
Total	**308**	**100.0%**

Table 5.14. The total number of composite carvings in each site size class.

Sites according to size*	Total N of composite carvings at all sites	% of composite carvings
Very small	860	11.9%
Small	1754	24.3%
Medium	1627	22.6%
Large	1142	15.8%
Very large	1825	25.3%
Total	**7208**	**100.0%**
* Based on N of composite carvings in tab. 5.13		

5.8. Conclusion

This chapter studied the traces of production and consumption that can be detected in the rock art to gain an understanding of the practice of making the images and what happened to them afterwards. The results reveal a number of overall patterns in the production method of the Jebel Qurma figures. The majority of the figures have been made using the pounding technique and have been filled in completely; this is the most common carving practice visible in the rock art. Common variations on this are incised figures, figures made using a combination of techniques, and figures consisting of only an outline. Pecked images are relatively rare. Combinations of techniques appear to have been used to either add details to a figure or to sketch an outline of the image before carving it completely. For these figures, it is possible to reconstruct the *chaîne opératoire* of carving, giving an insight into the steps the carver took to produce the final image. Creating a sketch or outline would have allowed for more precision in the creation of the form and a greater ability to adhere to a particular design. This suggests an element of planning to some of the pictorial engravings.

Similarly, multiple steps were involved in creating images with small details, where the whole figure was likely carved first before adding a pattern, hairs, gender/sex, tack, etc. While not all of the images in the corpus feature an outline/sketch or added details, their combined frequent presence in the carvings suggests that the rock art was not created through a process of simply pounding on the panel. The carving practice was more complex than that, involving specific production steps and practices. This is also visible in whole compositions, such as scenes and composite carvings with inscriptions. In the latter case, it appears that in most cases the image was carved first. It is possible that the image provided the frame for the whole composition. In some cases, a visual emphasis is placed specifically on the image and the name of the author through the use of percussion technique for these elements and incisions for the rest of the inscription.

The fairly consistent use of technique, production process, and composition has resulted in a relatively homogeneous style. In the Jebel Qurma corpus, the different motifs tend to be depicted in a recurring style, making them easily recognisable. Most of the zoomorphs were consistently depicted larger, in more detail, and made using a more elaborate production process than the anthropomorphic figures. The only exception is the woman motif. Overall, therefore, the emphasis appears to be on the zoomorphic figures in terms of the production process and the final appearance. This is especially noticeable in scenes, where technique, details, dimensions, and composition have been used to create visual emphases in the scene, most commonly on the zoomorphs. Different levels of visual emphasis are visible in the scenes, created through the differences in production technique and amount in detail and in the composition. For example, in hunting scenes featuring humans hunting animals, the prey tends to be the focal point. The exception is when the hunter is a person on horseback; then the emphasis is on the equid. When animals are hunting other animals, there is little difference between the figures. In raiding scenes, the dromedary camel immediately draws attention, as do any equids used in the raid, whereas the anthropomorphs are small and lack detail. The animals in scenes, most notably the prey, equids used in a hunt or battle, and the camels being raided, have thus been visually emphasised.

There are differences between the zoomorphic motifs. A few are very minimal in their forms, such as the ostriches and canids, while others tend to be elaborate and skilfully executed, such as the bovids, equids, and dromedaries. Equids and bovids have frequently been depicted with the added detail of patterns. It is unclear what these patterns were meant to represent, but they are an interesting extra dimension of production detail. Lions are depicted in a consistent manner, whereby there is an emphasis on their size and on their threatening features.

A closer study of the dromedary figures also reveals that their form is not naturalistic; the exaggerated hump, elongated neck, and curved body do not resemble the features of a real camel. However, small, realistic anatomical details have often been added. There is thus an interesting juxtaposition between the realism and surrealism of these figures. Their detailed production process, combined with the frequency with which they have been depicted, reflects the importance of this motif in the rock art, a point that will be discussed

further in Chapter 7. It is currently difficult to say to what extent the style of the Jebel Qurma rock art is representative for Safaitic rock art in general. There appear to be a lot of similarities, but also differences between, for example, the dromedary camel figures and the camel figures associated with the so-called fine script.

The production of the rock art was probably, in general, a time-consuming activity. The basalt rock is hard to carve and would have required considerable effort to engrave. The time and skill it took to carve a figure of scene would have depended on various factors, such as the technique(s) used, the level of detail, the size of the composition, and the ability of the carver. These factors also account for differences in style to some extent. However, the patterns in *what* was depicted in the rock art, as shown in the previous chapter, and the homogeneity in *how* they were made, shown in this chapter, suggests that there were specific conventions in what to carve and how to carve.

This is not to suggest that there was no individuality in the carvings. Indeed, the practice of signing one's name next to the image adds a clear dimension of individuality to the compositions. The form and content of the petroglyphs would also partly have been influenced by the ability of the carver and the individual choices made during the production process. It is difficult to determine how many individual artists there are in the Jebel Qurma corpus. The various names are common and, in this region, the inscriptions rarely include long genealogies, often only the name of the father. For these reasons, even if a name repeats in the corpus, it is not certain that it was the same carver. Della Puppa (forthcoming) is developing a methodology to assess the style of the texts, which, when evaluated against compositions signed with the same name, will help make it possible to identify individual carvers. Future research combining this with a study of the style of the rock art could provide even more insights into this question. Currently, it is clear that a number of carvers have made multiple compositions throughout the Jebel Qurma region. This suggests that the practice of carving was not a one-time event. At the same, there is not a high degree of repetition of names in the known Safaitic corpora (Al-Jallad 2015: 3)

The practice of carving appears to have encompassed more than only the engraving of compositions. The traces of consumption detectable in the corpus indicate that people were also engaging with the carvings of others. The Safaitic inscriptions provide us with evidence for the active consumption of the carvings (see Chapter 3). The widespread presence of curses and blessings in the Safaitic corpora reveals that carvers were aware that other people would view, read, and possibly interact with their compositions. They were worried about the negative interaction of someone effacing their creation and hopeful for the positive interaction of someone reading their text aloud. Additionally, people would also react to finding inscriptions carved by someone they knew. As such, traces of interactions in the carvings can be interpreted as the work of later consumers. In the Jebel Qurma material, these traces consist of effacement, superimposition, modification, and accumulation. Superimposition of images and the modification of images are rare; only 2% of all of the figures have been superimposed by another figure or an inscription and only 1.5% of the figures have clearly been modified by someone else. These types of interactions are thus not common occurrences.

Effacement occurs more frequently in the corpus, especially among the inscriptions, explaining the need for curses warning against this act. Zoomorphic figures were more frequently targeted than anthropomorphs and of the zoomorphs, the lion motif has the highest percentage of effaced figures, followed by bovids. It is an enigmatic element of this act that certain parts of the figure were more often effaced than others. Most notably, the heads of zoomorphic figures have often been purposely damaged. It is, however, interesting that the inscriptions were the attention of acts of effacement much more often than the images. This is exemplified especially by the numerous examples of compositions where the text has been effaced, but the rock art has been left alone. Additionally, the inscriptions were destroyed by others in more ways than one; they were effaced and modified in such a manner that the text became meaningless. In contrast, the rare modifications in the rock art do not appear to have had a similar intention. The effacement of figures and destruction of inscriptions may have been intended to break the power of the carving or negate the authorship of a composition.

The accumulation of images over time can point to a different type of interaction between carvers and pre-existing creations. The results of this analysis suggest that people did not often choose a boulder with other carvings on it to engrave their own composition. However, this might partly be a result of the nature of the basalt boulders, which due to their limited size do not allow for a large extent of accumulation. Interestingly, the huge boulders present at a few sites attracted a great number of carvings. This suggests that there *was* a notion of adding to already carved panels. When choosing a boulder to carve on, carvers may have made an explicit choice to either carve their composition on an 'empty' panel or to carve it on a large boulder next to older engravings. The same seems to be true for the accumulation at sites. A large number of sites contain only a few rock art compositions and

carvings, but a few sites have very large concentrations. These sites together contain a large percentage of the rock art corpus and the total corpus of carvings. Therefore, although the distribution of carvings is fairly spread out across the sites, certain places appear to have attracted a high rate of accumulation. In the following chapter, I investigate where these places are located in the landscape.

It is difficult to determine over which timespan this accumulation occurred. It may be years, decades, or centuries. There may have been periods of intense activity and periods with very little. Inscriptions in which authors state that they found the carving of someone they know, often a relative, indicate that there was some accumulation within a couple of generations. However, it is difficult to make any claims about the temporality. This is firstly because the carvers were nomads who, at least to a certain extent, were mobile and practised seasonal movement (Macdonald 1992). Therefore they may have been very active in one region, such as the Jebel Qurma area, during a certain period or certain years and active in another in at other times. Second, the conventional chronology of the Safaitic tradition is only a minimum range, so it is unclear over how many centuries the practice was spread. However, what is evident, and will be shown more distinctly in the next chapter, is that carvers were mostly making their compositions in the same locations, whether this was several months or several generations after the last carving had been made in that place.

Chapter 6

Places of production and consumption

6.1. Introduction

The intricate relationship between rock art and the landscape has long since been recognised by scholarly debate in rock art studies. Seminal works such as Richard Bradley's study on Atlantic European rock art (Bradley 1997) and the edited volume *The Figured Landscapes of Rock-Art* (Chippindale and Nash 2004a) have demonstrated the value of a landscape approach to rock art and paved the way for the many advancements that have been made in this field since. It is evident that studying rock art contextually is crucial to gaining further understanding of the three central components to a material study of rock art: content, production, and consumption. The previous chapter discussed the direct traces of production and consumption. This chapter explores the *places* of production and consumption. Where in the landscape was the rock art produced and consumed? What kind of indirect traces of interaction can we detect between the producers and the rock art landscape and the consumers and the rock art landscape? These places are discussed on two levels in this chapter: the micro-landscape and the macro-landscape.

The study of the micro-landscape focuses on the rock surface itself, the relationship between the rock art and the rock, and the occurrence of individual compositions and accumulations on boulders. The study of the macro-landscape comprises two parts. First, I present the results of the spatial analysis of the distribution of Safaitic carvings in the Jebel Qurma region. Based on these result, I discuss the relationship between the rock art and the natural landscape and the rock art and the anthropogenic landscape. Second, I look at two factors that can provide insights into the significance of the rock art and its producers and consumers: the accessibility and visibility of and from carving sites. Through these analyses, this chapter explores what we can say about the places of production and consumption of the Safaitic rock art in the Jebel Qurma region.

6.2. The micro-landscape

The Jebel Qurma engravings occur on a number of different types and sizes of basalt boulders. As mentioned in the previous chapter, most boulders are small to medium-sized,[1] but there are a number of large boulders[2] covered with a multitude of carvings. Carvers appear to have made the most of the space available on the panel, with compositions generally taking up all of the panel, whether it is an image with inscription (e.g. Figure 5.9b and Figure 5.15) or an entire scene (e.g. Figure 5.1 and Figure 5.22). There are a number of carvings that appear to make use of the panel in terms of more than just space; they engage with certain features of the boulder, making use of the panel topography in their composition. In total, there are 15 rock art carvings that do so, of which 11 are hunting scenes and four are abstract figures.

6.2.1. Hidden hunters

The majority of hunting scenes, and scenes in general, are depicted on one panel on a boulder, usually taking up most of the panel. But there are eight representations of hunting that stand out because they are depicted across multiple panels and three which show similar compositions. They were found at seven different sites. All of the depictions are associated with an inscription. Of the eight scenes whereby the inscription could be translated, the authors' names and genealogies were all different.[3] These scenes were thus each made by a different carver.

These compositions have what could be called the 'main panel', where most of the figures are located and which immediately draws the eye, and a 'side panel' where only one figure is depicted and which is often less noticeable. For example, one boulder features three archers and a dog on one panel, surrounding a herd of three oryx (Figure 6.1). There is a fourth archer located behind the oryx, but on a different panel of the boulder, as if slightly hidden from view. Seven other hunting scenes exhibit the same type of composition. Additionally, there are two hunting scenes where the hunter is not depicted on a side panel, but it is located in an indent in the boulder.

In each of these scenes, the style and technique of all of the figures are the same and they were clearly carved as part of the same scene. The 'hidden' figure was therefore not a later addition to these scenes. Additionally, there is no reason to assume that the carver expanded to the side panel merely due to lack of space; the main panel is not overcrowded. Indeed, in other hunting scenes, even those involving a lot of figures, the entire scene fits on one panel, sometimes resulting in a couple of figures

[1] The average panel size is 24 x 18 cm
[2] A panel length of 1 m or more
[3] In three cases, the inscription was too weathered to be deciphered.

Figure 6.1. A hunting scene depicting archers hunting oryx with the help of a dog. The main panel (shown left) has three oryxes surrounded by three archers and a dog. The side panel (shown right) has another archer depicted, as if hiding from view. The archer's bow and arrow curves across onto the main panel (QUR-64.213).

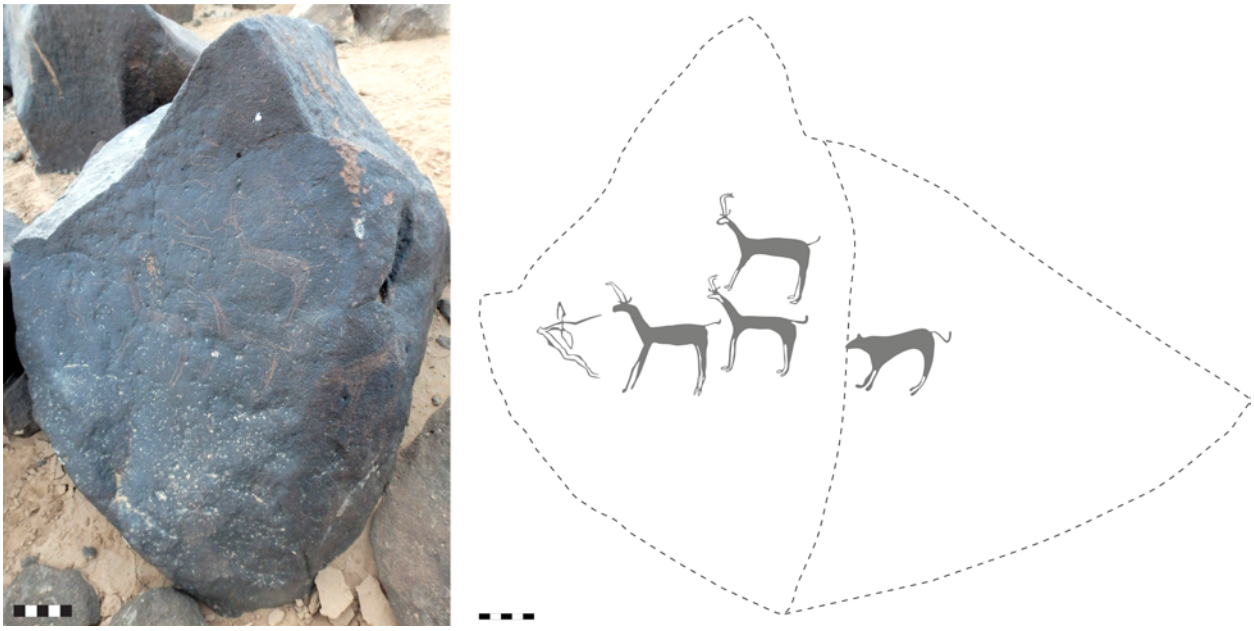


Figure 6.2. In this hidden hunter scene, the helper in the hunt, the dog, is located on the side panel. On the main panel an archer stands across from three bovids. The inscription probably refers to 'the she-goats' (QUR-176.94). Right: Tracing of the hidden hunter scene (the inscription has been excluded). The dashed line represents the edges of the panels.

being smaller or at a different angle. In two of these multi-panel hunting scenes, there is also a cartouche carved around all of the figures across the two panels, also indicating that they belong together. Therefore, it appears that it was a conscious choice to depict these scenes across two panels, revealing an interesting interaction between the carver and the material.

In all eight scenes depicted across two panels, it is clear that the producers of the carvings deliberately used the shape of the boulder in the composition of the hunting scene. Interestingly, in all of these scenes, it is a hunter that is depicted on the side panel. In one scene it is a dog depicted on the side panel. It is situated as if standing behind or chasing the three bovids, either ibex or gazelle, which are depicted on the main panel, across from an archer (Figure 6.2). The other seven scenes feature an archer on the side panel. It is noteworthy that in five of these scenes, the bow and arrow held by the archer curves across the boulder ridge and onto the main panel.

Figure 6.3. A hunting scene depicting an archer hunting four bovids. The archer has been carved on a part of the panel that is situated at a slight angle to the rest of the panel (QUR-442.12).

Figure 6.4. The archer is situated upside down in a small 'dip' in the panel. The contrast between the incised archer and pecked wild ass also creates degrees of visual emphasis in the scene (QUR-839.35).

The two other hunting scenes also appear to make use of the natural features of the boulder, but in a slightly different manner. In both cases, the archer and the prey are situated on the same panel. However, in one scene, the archer is located on a part of the panel that slants away from the rest (Figure 6.3). In the other, the archer appears to be located in a 'dip' or indent of the boulder (Figure 6.4, Figure 3.12). In the latter example, the archer's bow and arrow also curve over the dip. In both scenes, the panel topography creates a subtle division between the hunter and prey. It seems likely that, considering the other examples, the locations of the archers on the panel were also chosen deliberately to enhance the image.

There is one additional scene that might have been produced in a similar way, but here it is not clear if the figure on the side panel was originally part of the scene. On the main panel, a hunting scene is depicted featuring a large carnivoran standing behind five ostriches (Figure 6.5). On the side panel, there is a thinly incised carnivoran situated as if facing the ostriches. In terms of composition, it appears to belong to the scene. The style and the technique of this figure are the same as the other figures, but it appears unfinished, making it difficult to ascertain if it was made as part of the same composition originally. However, if the maker of the scene did not carve this carnivoran, it would suggest that someone else did later. This person would clearly have been aware of the hunting scene so this would point to an interesting later interaction with the scene.

In all of these hunting scenes, the natural divisions in the rock, either between panels or within one panel, have been used in the creation of the composition. The result is that these scenes have a 'hidden hunter', a hunter separated and thus seemingly hidden from view of the prey due to the physical properties of the boulder's surface. Furthermore, the hunter is sometimes not only hidden from the other figures on the rock, but also from the viewer of the rock art scene. The main panel usually contains the majority of the figures and sometimes also an associated inscription and abstract motif. It therefore immediately captures the viewer's eye. However, the figure on the side panel often only becomes visible when the viewer looks at the boulder from a different angle or position. How quickly the hidden hunter is discovered depends on a number of factors, including how great the angle is between the two panels, the technique used to carve the figure, the size of the side panel, and the general composition. For example, one scene features an archer and a wild ass, which are both immediately noticeable because the angle between the

Figure 6.5. A hunting scene featuring a carnivoran and five ostriches. The inscription is unclear, but might refer to 'the ostriches'. On the side panel there is another, very thinly incised and probably unfinished, carnivoran. This might be an unfinished hidden hunter scene. Right: the carnivoran has been traced (red) (QUR-442.1).

Figure 6.6. The two panels subtlely divide the archer (depicted upside down) from the wild ass. The archer's bow and arrow curves across onto the other panel (QUR-176.29).

two panels is quite small, the archer is quite large in relation to the wild ass, and the technique used to carve the two figures is the same (Figure 6.6). Additionally, the inscription is situated on the same panel as the hidden hunter; this is the only scene where this is the case.

In contrast, one of the other scenes found at the same site is situated on a small, loose boulder where the angle between the two panels is very great (Figure 6.7a). Here the archer on the side panel was literally hidden from view until I turned the boulder over and discovered the figure (Figure 6.7b). Only the archer's bow and arrow curving onto the main panel gave away that it was there. At the time of discovery, the side panel was also facing down on the ground, completely obscuring the archer. It is impossible to know if the boulder was originally positioned this way, but even if it was not, the archer would have been hard to see due to the angle of the side panel. Similarly, when viewing one of the other hunting scenes, at first glance the rock art appears to just depict a herd of ibex, a common occurrence (Figure 6.8a). However, when the viewer looks at the boulder from another angle, the archer becomes visible and the hunting scene unveils itself (Figure 6.8b).

Other scenes appear to use differences in technique to enhance the division that the panel topography creates. For example, the hunting scene featured in Figure 6.9 depicts the archer on a different panel than the wild ass and the archer is only incised, whereas the wild ass is pounded. As a result, the archer is barely visible from afar. A similar difference is observable in Figure 6.4. These eight - possibly nine - hunting scenes thus all interact with the topography of the boulder to enhance the effect of the content, often in combination with a manipulation of composition and technique. The result is a variation in the (in) visibility of the figures in the scene. The scenes thereby acquire an extra dimension to the narrative: that of the hidden hunter ready to ambush the prey. Furthermore, the carvers have not only used the micro-landscape of the boulder to their advantage, they may even have intended to recreate a landscape within the scene.

Figure 6.7. In this hunting scene, two anthropomorphs hunt two ibex and an oryx together with a dog. One of the anthropomorphs, an archer, is barely visible at first because he/she is carved around the edge of the boulder. Right: Close-up of the archer on the bottom of the boulder. To take these photos I leaned the boulder on another rock, but when we discovered it the boulder was resting on the ground, completely obscuring most of the archer's body. The inscription says 'By Fdy son of Yṣḥḥ are the ibex and the animals' (QUR-176.32). 3D model generated by author using Agisoft Photoscan.

Figure 6.8. Approached from the front, this composition appears to consist of depict a herd of ibex, a woman figure, and an inscription. Right: When viewed from a different angle, the hidden hunter appears and the hunting scene reveals itself (QUR-64.134).

Figure 6.9. In this hunting scene the hunter is barely visible at first glance. The archer is situated on side panel and is thinly incised. The prey, the wild ass, is large and has been pounded. The inscription, made in the same technique as the archer, refers to 'the wild ass' (scale bar = 20 cm). Right: The archer has been traced (red) (QUR-733.9).

6.2.2. Micro-structures

The four other figures are two kites and two 'wheel' figures, which also appear to engage with the topography of the boulders on which they are carved. The two desert kite depictions have both been carved across multiple panels of the boulder, whereby the largest, circular part of the figure is situated on top of the boulder, on a flat panel facing upwards. The smaller circles, probably representing the kite's enclosures, are located along the edges of the panel and, in some cases, on another panel or a sloping side (Figure 4.78). The long lines, probably depicting the guiding 'arms' of the kites, have been carved on the panel below, sloping away from the main structure. As such, these carvings appear to be almost 3D depictions of the real-life installations. In both cases, the carving engages with the natural features of the boulder and it is highly likely that the boulders were chosen deliberately for their shape to create these depictions. Several of the kite carvings surveyed from other areas in the Jordanian *harra* by Helms and Betts (1986) (see Chapter 4.5.8) also make similar use of the boulder topography in their shape, a fact noted by Helms and Betts (1986). By carving the depictions across the boulders in this manner, the producers managed to imitate the appearance of the stone structures in the landscape, thus creating 'micro-structures'.

The other two figures are more difficult to identify, but they might represent the 'wheel' stone structures also found in the landscape, as proposed in Chapter 4. The two figures have in common that they are both carved around a small, round indent in the panel. Lines extend from the natural indents in the rock, forming a wheel shape in one figure (Figure 4.77c) and a more ambiguous shape in the other (Figure 4.77d). In both, the carvers have clearly and deliberately made use of the panel feature to create or enhance their engraving. However, if they were meant to depict wheel structures, the topography of the rock is not used to mimic the topography of the structure, like in the kite carvings. Their resemblance to the stone wheel structures is not as convincing as that of the kite carvings. It is possible that these depictions were not meant to represent micro-structures, but instead display a different form of interaction with the rock surface.

6.2.3. Individual compositions and accumulations

The previous two sections covered evident examples of the intentional interaction with the surface rock. Carvers chose specific boulders for the carving of specific images. However, what about the rest of the carvings? Were they deliberately produced on specific boulders? As I showed in the previous chapter, the majority of the rock art compositions have been carved separately on rocks with no pre-existing petroglyphs. This may be a result of the size of the surface rock available; there is not the space for many engravings. Equally, it may have been a conscious choice to create a composition in its own space. This seems to especially have been the case for scenes. Compositions consisting of an individual figure, such as a camel with an inscription, occur on their own on a panel and are also found on larger boulders with an accumulation of carvings. In contrast, scenes are very rarely found on boulders with other compositions, especially the hunting and conflict scenes (e.g. Figure 4.90-4.96). There are plenty of large boulders at some sites with enough space to add a scenic composition to them. It would therefore seem that carvers chose to produce scenes on empty, individual spaces. This may have been to create a clearer and more visible narrative; a scene carved among other petroglyphs would not stand out as much. One of the few examples of a scene carved among other petroglyphs is the nursing and leading scene shown in Figure 4.98. However, based on the style and technique of the figures, all of the compositions on this panel appear to have been made by the same carver.

The large boulders with an accumulation of carvings show no particular patterns in the types of petroglyphs that they attracted, other than the lack of scenes. The large boulder at QUR-186 has a variety of individual zoomorphic motifs, including several individual camels and a flock of ostriches, and a lot of inscriptions (Figure 5.23). Similarly, one of several large boulders at QUR-148 is engraved with three separate camels, a lion, an anthropomorph, a bovid, and several inscriptions (Figure 6.10) and a large panel at QUR-64 contains several figures and inscriptions (Figure 4.26). None of the rock art figures on the large boulders appear to be carved so that they are interacting with or related to one another. Simultaneously, as shown in Chapter 5, in general, few carvings superimpose each other, indicating that carvers worked around pre-existing compositions on the boulders, and few rock art figures are effaced. In future research, it would be worthwhile to investigate how the inscriptions relate to one another and to the rock art compositions. There are some indications that there may be more engagement than is visible in only the rock art record. As discussed in the previous chapter, the rate of effacement and destruction is higher in the textual corpus. Additionally, there are examples of rock art compositions signed by multiple authors. For example, the hunting scene from QUR-64 shown in Figures 4.51 and 6.1 is signed by three carvers, two of which refer to 'the oryx' and one of which refers to 'the image'. Did the three carvers make the scene together or somehow participate in the carving act together? Or did one person make it and on separate occasions two other people came along and 'claimed' the image as their own work? A joint study of the rock art and inscriptions could shed light on these questions.

Figure 6.10. A large boulder at QUR-148 with six figures and five inscriptions (scale bar = 20 cm) (QUR-148.110).

6.3. The macro-landscape

6.3.1. Distribution of carvings

The results of the study of the micro-landscape show that carvers intentionally chose different types of boulders on which to make rock art compositions, influenced by a number of different factors. In the following two sections, I explore whether factors of the macro-landscape of the Jebel Qurma region influenced the carving of compositions on a wider scale. I do this through a number of spatial analyses, investigating the distribution of carvings throughout the region. A list of all of the sites and their number of carvings can be found in Appendix D.

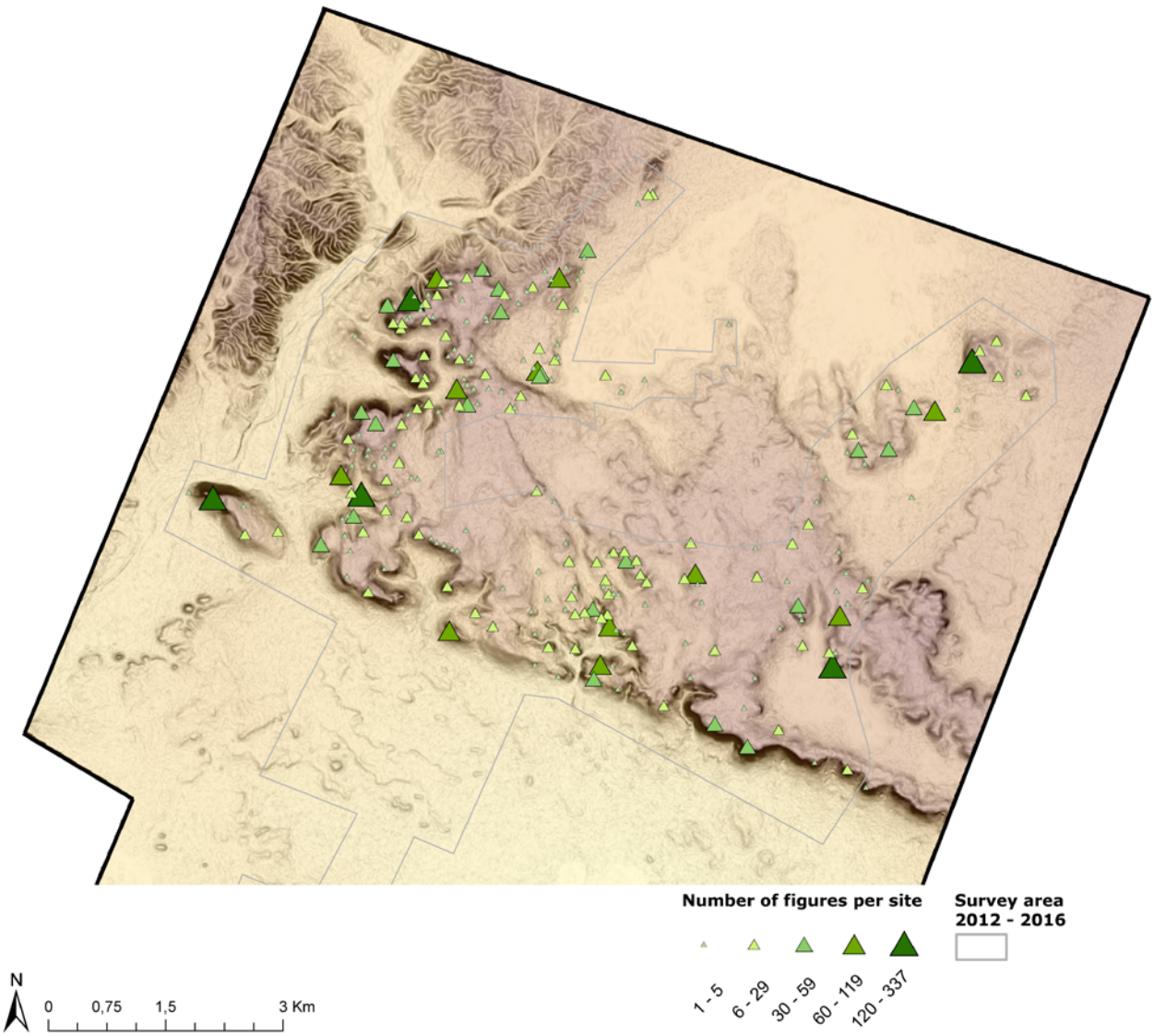


Figure 6.11. Distribution of figures per site in the 2012 - 2016 surveyed area of the Jebel Qurma region. Base map: overlay of slope degrees on WorldDEM.

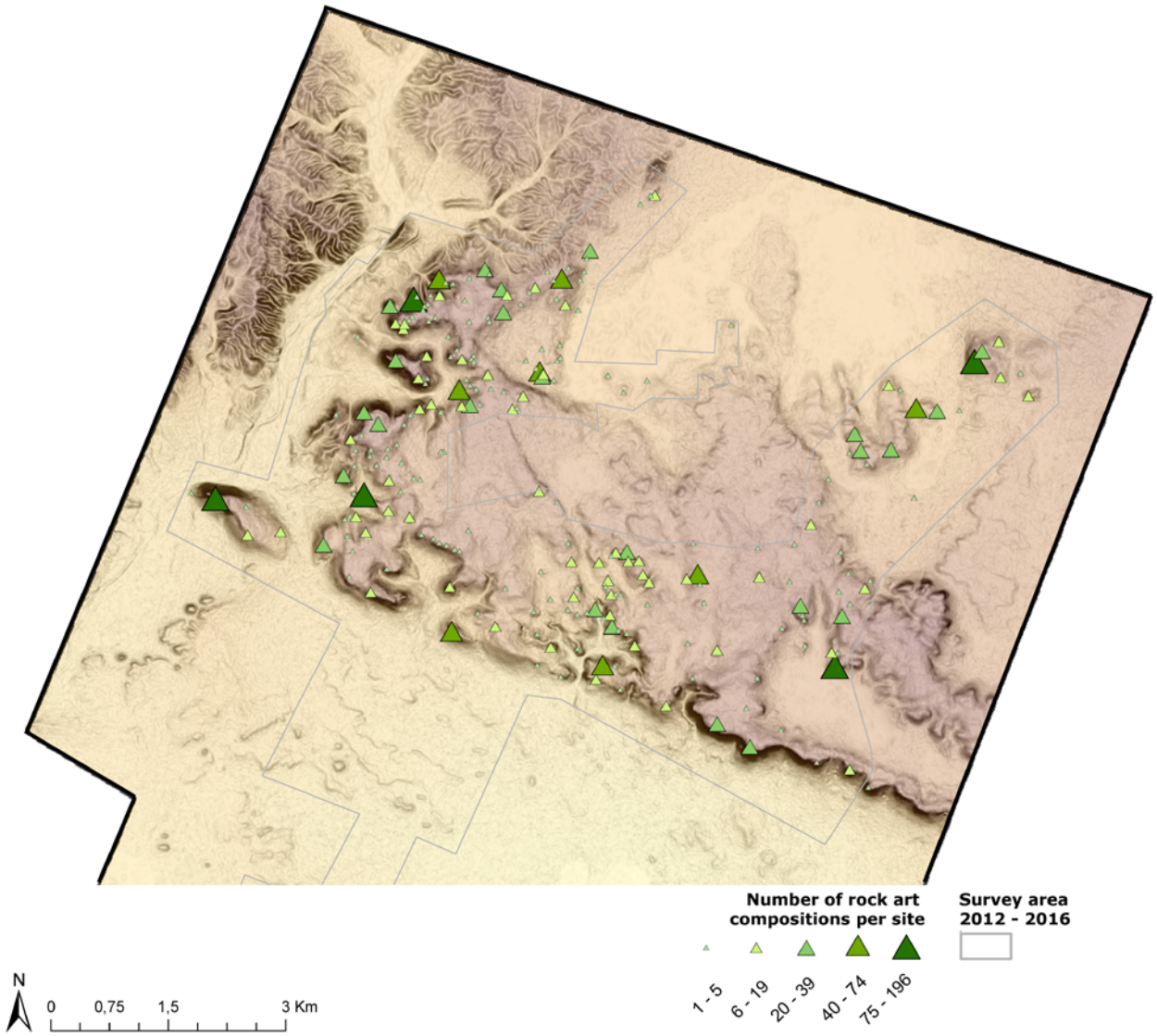


Figure 6.12. Distribution of rock art compositions per site in the 2012 - 2016 surveyed area of the Jebel Qurma region. Base map: overlay of slope degrees on WorldDEM.

Figures 6.11-13 present the distribution of carving sites in three different categories: figures, rock art compositions, and composite carvings (for an explanation of the terminology see Chapter 3). These distributions were made according to the classes of sites and their sizes presented in the previous chapter's discussion on accumulation (see Tables 5.13-5.14).

Comparing the three distributions, it is apparent that there are few differences between the categories. The distribution of rock art sites, whether counted per figure or per rock art composition, is near identical to the distribution when the associations with inscriptions are included. The only difference is in the total number. There are 68 additional sites when the inscriptions are included in the analysis. Additionally, the total number of carvings per site is much higher in some cases; for example, QUR-2 has 643 composite carvings in comparison to 337 rock art figures. However, the relative number of carvings per site is similar. This indicates that the place of production did not vary depending on whether the carving was a petroglyph, an inscription, or a composition of image and text. For this reason, I will subsequently discuss the distribution based on the analysis of composite carvings, shown in Figure 6.13.

This distribution of composite carvings *per site* can be compared to the distribution of composite carvings *per boulder* for the north-western part of the research area (Figure 6.14). For this area, which was surveyed in 2015, there are GPS coordinates available for each engraved boulder. Comparing the distributions, it is apparent that there is little difference. The spread of carvings across the northernmost hill in the area and the cluster around the mudflat are clearer when the distribution is plotted per boulder. However, overall, the boulders with carvings are located in very dense concentrations.

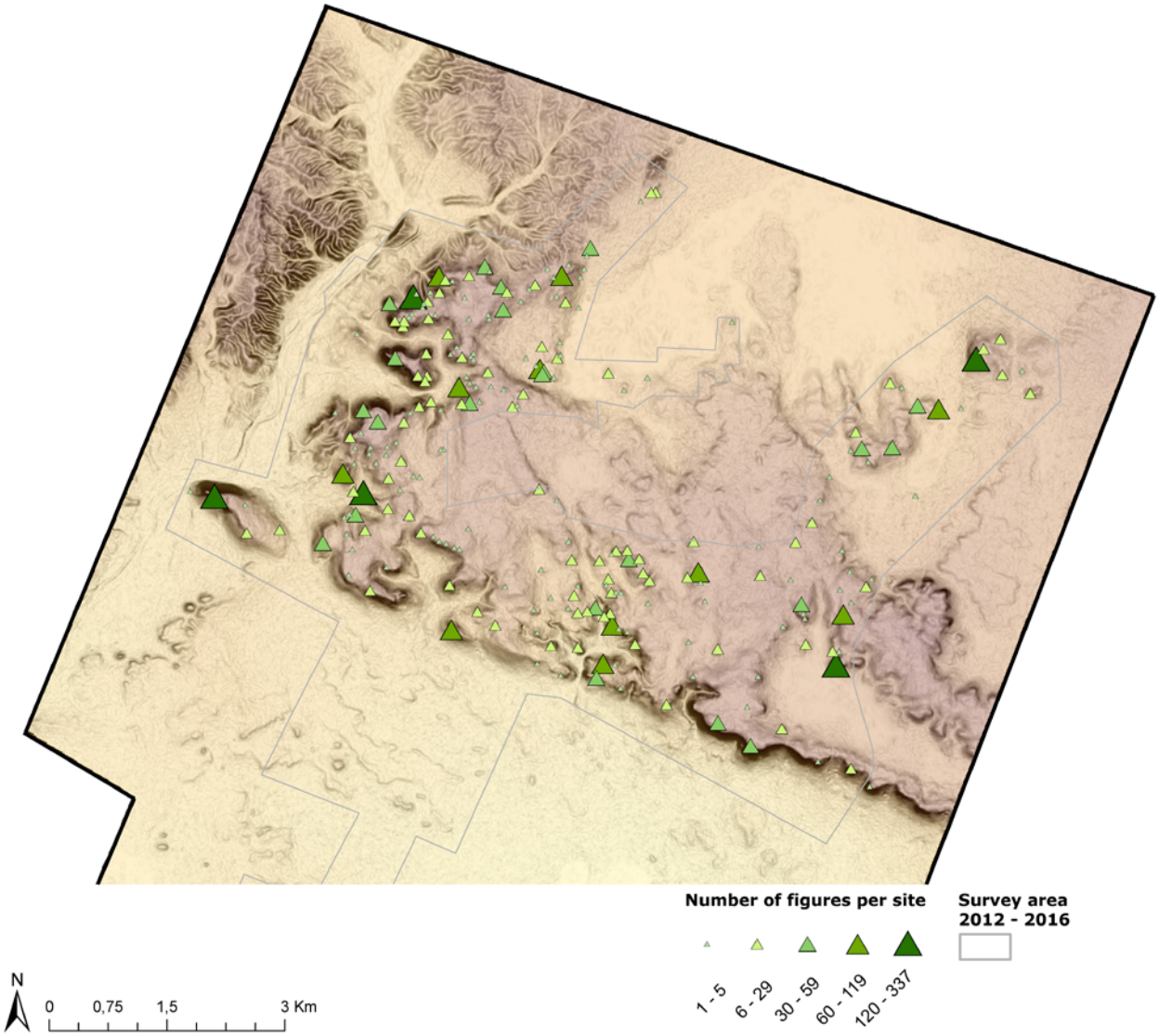


Figure 6.13. Distribution of composite carvings per site in the 2012 - 2016 surveyed area of the Jebel Qurma region. Base map: overlay of slope degrees on WorldDEM.

This illustrates that carving sites do not consist of a spread of carvings across tens of metres, but of localised dense clusters. This also suggests that, although the carvings are mapped only *per site* for the other areas in Jebel Qurma, the spatial distribution gives an accurate impression of the spread of the carvings in the region.

A number of observations can be made about the relationship between the carvings and the landscape. Firstly, there is a large number of very small sites (≤ 15 composite carvings), which are located throughout most of the survey region. However, altogether, only 12% of the Jebel Qurma carvings are located at these sites. In terms of site structure, they often comprise a small anthropogenic structure or two (such as a marker or clearing) with some carvings near it, a natural clearing with a few carvings found around it, or just a small cluster of carvings (Figure 6.15). Many of these sites are located close to large carving sites. The presence of a few carvings in these locations shows that people were active in these locations and may have built and/or used the structures there too. However, these are not the locations that attracted a large accumulation of carvings.

Instead, with the exception of these small sites, the carving sites are mostly concentrated around the periphery of the region and they are generally situated on the edges of the plateaus. In particular, the western side of Jebel Qurma, along Wadi Rajil, and the area around the small wadi in the south have very dense concentrations of carving sites. The majority of large sites (110 or more carvings) occur on the western side of the region. The only area where, at first glance, the sites do not appear to be situated mainly around the edge of the basalt is the area in the south, in the centre of the region. Here there is the only concentration of medium-sized sites 'inland' on the basalt plateau.

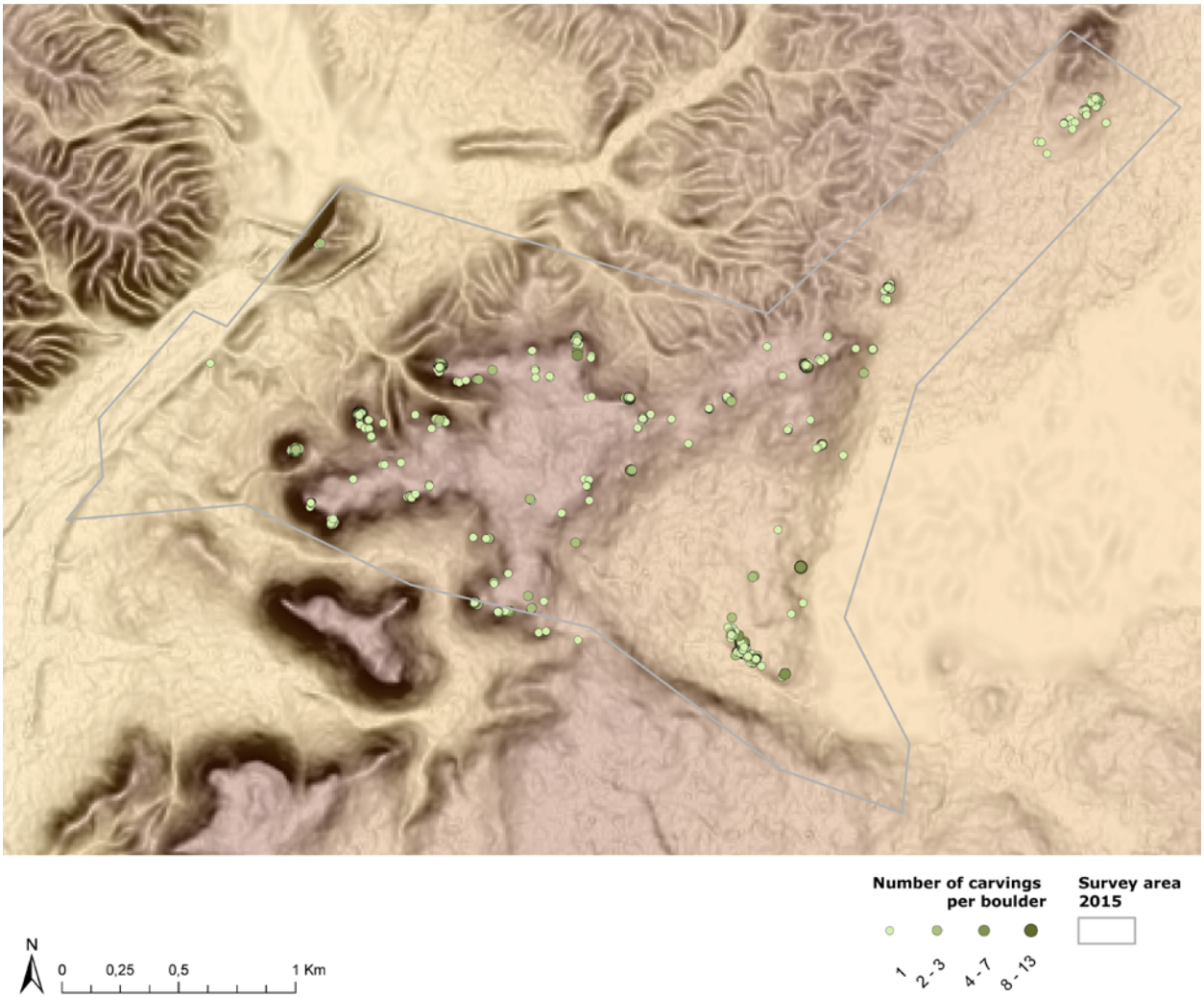


Figure 6.14. Distribution of composite carvings per boulder in the 2015 survey area. Base map: overlay of slope degrees on WorldDEM.

Figure 6.15. The small site QUR-516. The structure is a small clearance, of which the function and relationship with the carvings is unclear. The location of the inscription on the right is indicated. Right: Safaitic inscription in which the author states 'he pastured' (QUR-516.3.1). This is a typical setting of the very small carving sites: a small structure or two and a few carvings around or near it.

However, interestingly, this area is made up of a small wadi system and the carving sites are clustered on the edges of the basalt around the wadi valley (Figure 6.16). Therefore, it appears that all but the smallest sites are associated with places located on the periphery of the basalt. This distribution means that these sites all lie close to low-lying areas, such as the plains, wadi valleys or mudflats, and/or close to other sizeable sites.

Figure 6.16. The view from QUR-449 towards the wadi through which one can walk to reach the sites ‘inland’. Several rock carvings are visible in this photo, including a panel with two equids with riders (centre), another equid with rider (left), and a lion (right).

Figure 6.17. A view of the mudflat Qa’a al-Teyarat seen from QUR-176.

Figure 6.18. The view from QUR-137 of the small mudflat below.

Additionally, many lie close to what may have been places with water: Wadi Rajil, Qa'a al-Teyarat, and the small wadi in the south (Figure 6.17 and Figure 6.18).

Thirdly, the areas further inland, both on the large basalt plateau and on smaller basalt islands, appear to contain only small sites. This supposition cannot yet be confirmed for the entire region as the inland area roughly to the south of Qa'a al-Teyarat has not yet been surveyed. However, as mentioned in Chapter 3, remote sensing indicated no large sites with structures here and the adjacent surveyed areas contain only small sites. The results of the study above also suggest that this 'inland' plateau area would also have only sites with small concentrations of carvings. Further research could confirm whether this is indeed the case.

Fourthly, the majority of sites, and especially those with large concentrations, are usually located on high hills, on the ridges or ends of these hilltops, and concentrated around the highest point of the hill (Figure

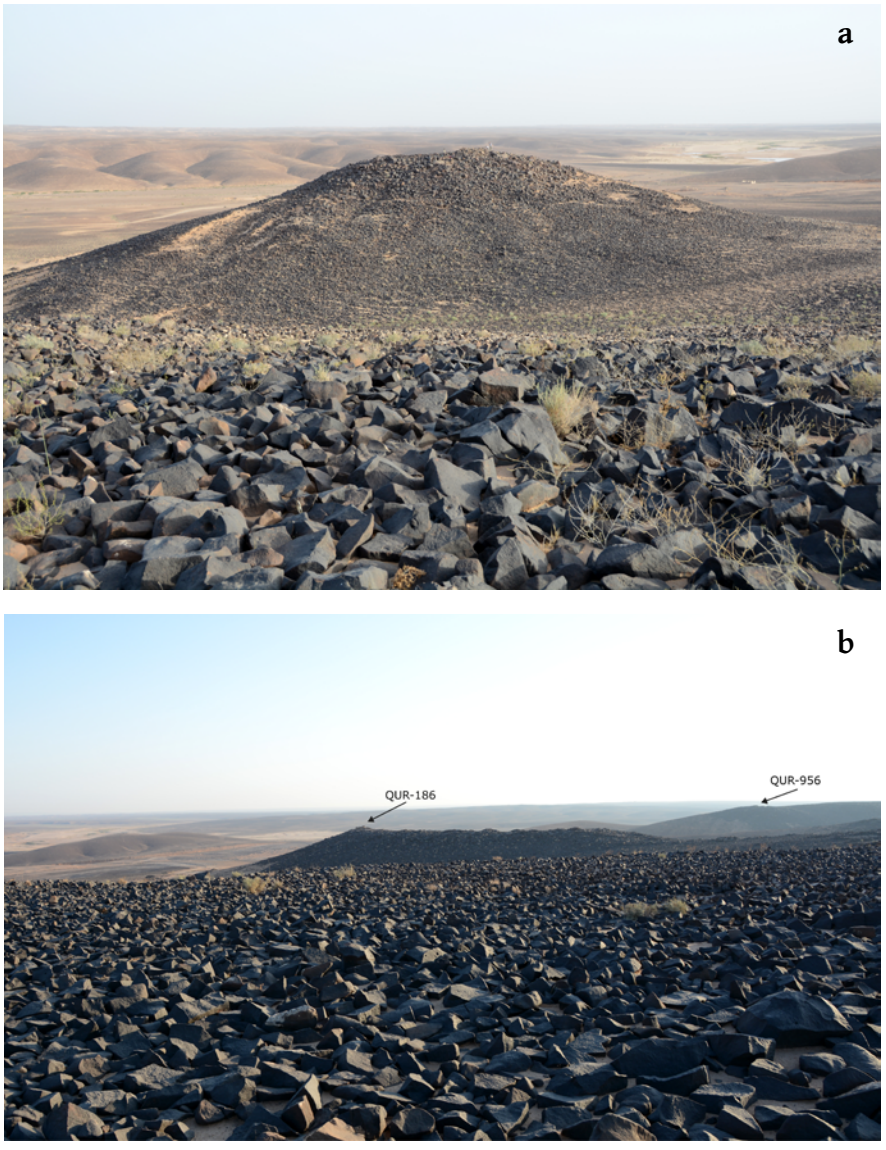


Figure 6.19. a) The tall hilltop on which site QUR-952 is situated, viewed from the basalt plateau to the south. b) A view of two basalt hills and sites QUR-186 and QUR-956, indicated, which are situated on the highest points of the hills next to the valley.

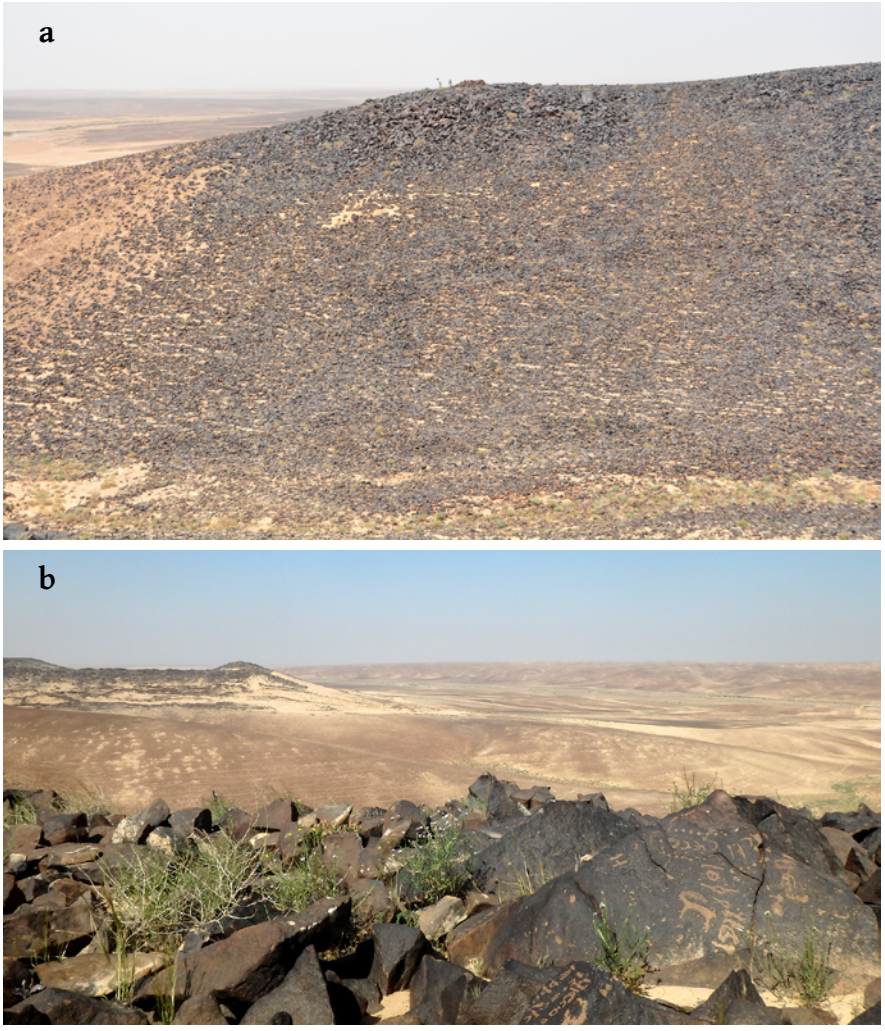


Figure 6.20. a) Standing at QUR-186 and looking northeast, the cairn of QUR-956 is just visible on top of the hill. b) A view from QUR-956. Two carved panels are visible in the foreground and the peak of QUR-186 is visible in the background. This site, like the others mentioned, affords an extensive view of the lower lying valley.

Figure 6.21. The site QUR-171 and one of its cairns and the attached crescent-shaped structure (scale bar = 50 cm). The site is siuated on a low, long hill , separated from the next basalt hill by a valley. The coloured tags visible in the photo mark engraved panels.

6.19). This, in combination with their position at the edges of the basalt plateau, means that the carving sites generally offer good views of the surrounding area, especially of the lowlands. Sites are also often visible from one another, although the carvings are not visible from these distances (Figure 6.20). The general distribution in high locations may explain the presence of only a few small sites on the eastern side of the Qa'a al-Teyarat; here there are only very low basalt hills, in contrast to the western side of the mudflat.

Lastly, other than the noticeable difference between the sites with 15 or less carvings and those with more than 15, there do not appear to be great differences in the distribution of the different size classes of sites. The four very large sites (300-643 carvings) are spread out throughout the region. They all have in common that they are located on high hilltops, at the edge of a hill or plateau, and adjacent to a lowland area. Of these sites, QUR-2, situated the hill of Jebel Qurma, stands out with 643 carvings. All four sites are also characterised by the presence of a tower tomb, a point that will be discussed below. The six large sites (110-299 carvings) are distributed along the plateaus next to Wadi Rajil and hills next to Qa'a al-Teyarat. Of these, the sites QUR-370, QUR-290, and especially QUR-171 are situated on relatively low hills compared to the other sites (Figure 6.21). The medium-sized sites (60-109 carvings) are more spread out throughout the region. However, they also all occur along the edges of the plateaus and hills and primarily in high areas. The second smallest category

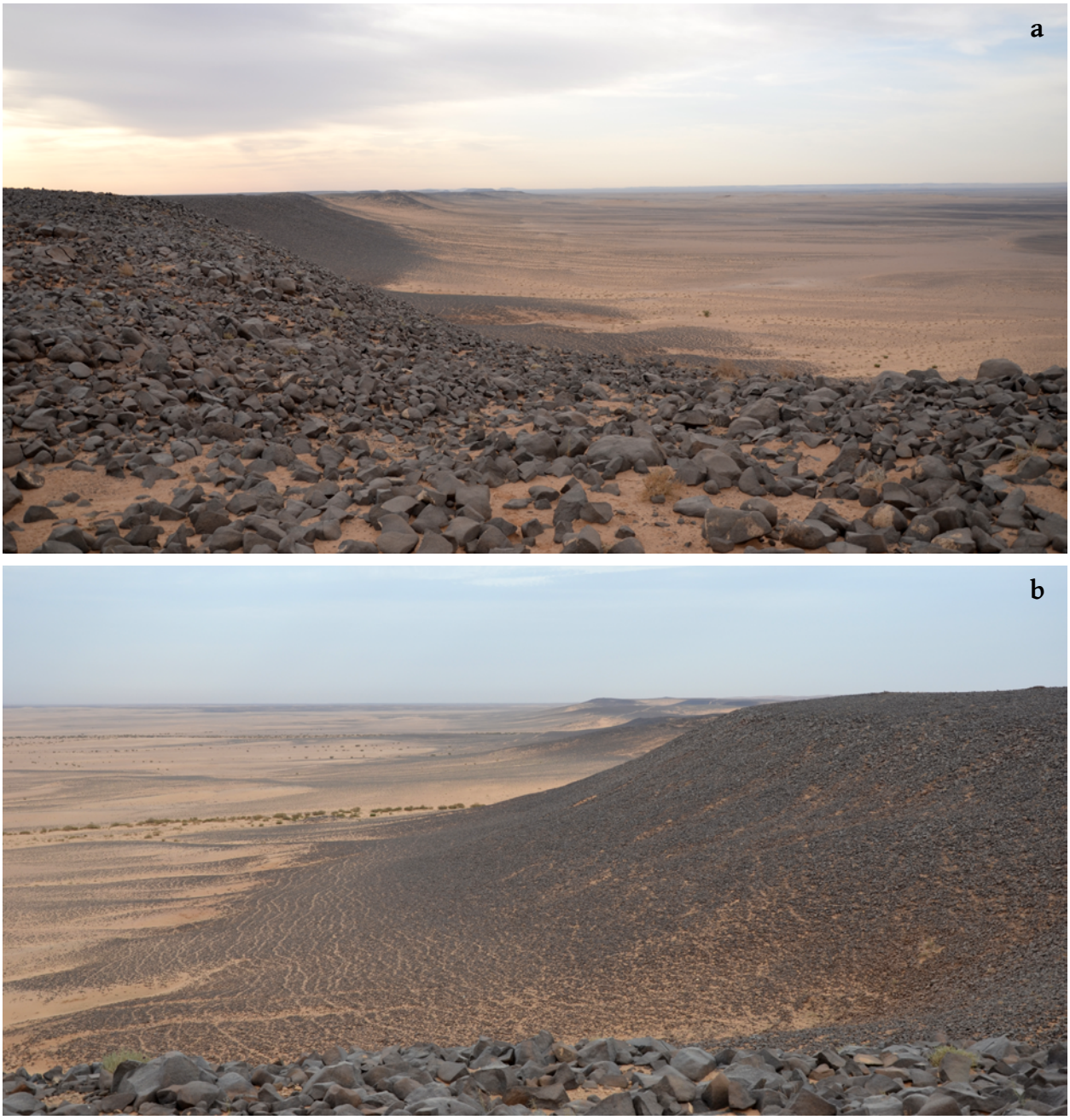


Figure 6.22. a) The extensive view from the site QUR-32 looking southeast. This site is located in the south of the research area, situated on the edge of the basalt plateau. It has 72 composite carvings. b) the view looking west.

of sites (16-59 carvings) also occurs throughout the surveyed area. The densest concentrations are in the north-western area and in the southern area around the small wadi. The majority are also situated along the edges of the basalt (Figure 6.22).

Based on these observations, there appear to be two factors influencing the production and accumulation of carvings in the Jebel Qurma area: accessibility and visibility. Carvings appear to accumulate in places that are accessible via easy routes through the landscape, i.e. through low-lying areas rather than the more difficult and slow to navigate basalt terrain. However, concentrations of carvings generally do not occur on the hillslopes further down, but instead up on the hilltops and on the ridges of the hills. The hills themselves are thus easy to access, but the particular locations of the carvings are less so as they require a climb up a basalt-covered hill. Yet their position on hilltops and ridges means that there is a high degree of visibility from the places where the carvings have been made. This differs between sites; for example, from QUR-2 one has a high and almost 360˚ view of the surrounding landscape, all the way to Azraq (Figure 6.23), whereas from QUR-965, QUR-171, and QUR-20 one has a view of the valley below (Figure 6.24). However, a high degree

Figure 6.23. A large rock art panel at QUR-2 with three canids and 16 ostriches on it (QUR-2.511). From the panel one has a view to the north and of Wadi Rajil, which had some water in it at the time of this photo, taken in April 2016.

Figure 6.24. A view from QUR-965, which is situated on the ridge of a gentle slope but provides an extensive view of the valley below. The rock art panel visible in the foreground features two lions hunting a dromedary camel and several other animals and inscriptions (QUR-965.24).

of visibility appears to be a common factor and is especially marked for the largest carving sites. These locations may therefore have functioned as vantage points along important routes, pastures, and watering areas in the landscape, places that the nomads might have accessed to sit on the lookout while camping or travelling through the region. A number of inscriptions hint towards this as well. For example, at QUR-7, which is located on a basalt hill next to Jebel Qurma, there are three inscriptions that mention camping,[4] one of which states that the author 'was on the lookout while camping' (Figure 6.25).[5] This text and the concentration of carvings it is in are situated on a high hilltop with a good view of the surrounding area (Figure 6.26). There are also three inscriptions at this site that mention lions in a narrative context, all of which also mention the author camping.[6] At the nearby site of QUR-12, also located on the southern edge of the basalt plateau, there is one inscription possibly referring to 'this lookout place' and stating 'he pastured while migrating'.[7] There are a further four inscriptions in the Jebel Qurma textual corpus referring to 'lookout'. Other similar subject matters can be found in the corpus, such as to 'lie in wait' and 'to keep watch'. For example, at the site QUR-64 there is an inscription in which the carver states 'let there be spoil from {enemies}...and he lay in wait'[8] and one in which the author says 'he kept watch this year'[9] (Figure 6.27).

Figure 6.25. A Safaitic inscription at QUR-7, in which the author says he is on the lookout, and the view from the site over the valley (scale bar = 20 cm) (QUR-7.12.1).

6.3.2. Structures and carvings

Looking at a number of the sites in detail, it is apparent that there is also a spatial relationship between stone structures and carving sites. This relationship is complex and, in most cases, difficult to clarify because it is often unclear whether the structure was already present when the carvings were made or whether it was constructed later. This is the case for the many smaller structures, such as clearings, markers, and walls for which the function is unknown. The majority have not been dated and therefore cannot be related to the chronology of the rock art and inscriptions. There are some kites, wheels, enclosures, and cairns that likely date to much older periods than the carvings. These were thus already present in the landscape and, there is evidence to suggest, reused in the Hellenistic and Roman periods (see Chapter 2.4). For example, at the site of QUR-20, there are four enclosures and a concentration of 60 carvings (fig. 6.28). The enclosures are situated on the slope of the hill and the carvings scattered around and above the structures

Figure 6.26. View from QUR-7 of the valley and the Jebel Qurma hill. This photo was taken in April 2016 after a wet winter, the effects of which can be seen in the vegetation.

[4] QUR-7.12.1, QUR-7.100.3, and QUR-7.101.1.
[5] QUR-7.12.1.
[6] QUR-7.30.1, QUR-7.30.3, and QUR-7.30.4.
[7] QUR-12.31.1
[8] QUR-64.4.1
[9] QUR-64.1.1

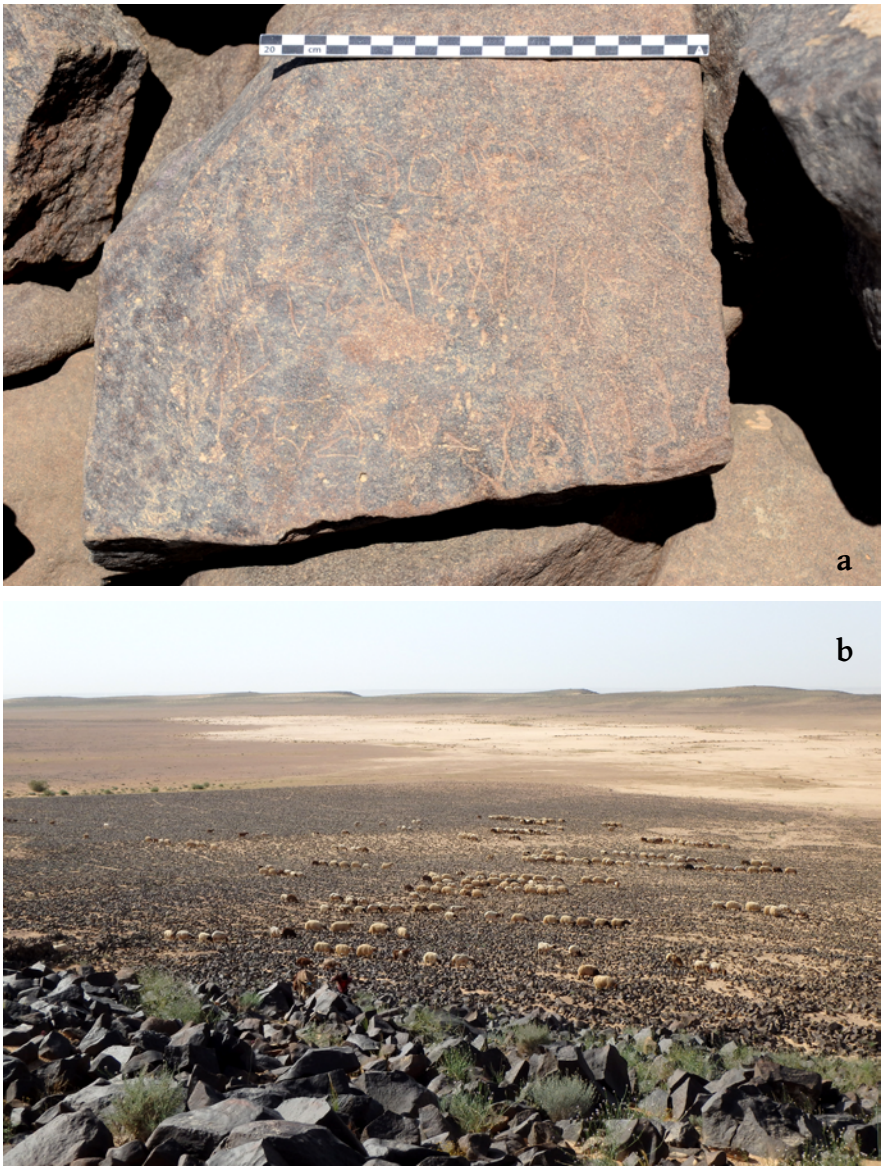


Figure 6.27. a) Inscription from QUR-64 that states 'By Fdy son of ʾs¹ son of mfᶜl son of rbʾl and he kept watch this year, O Lt, let there be security and he grieved for....' (the last part of the text is illegible) (QUR-64.1.1). b) View from QUR-64 to the southeast and the mudflat in the distance. A herd of sheep moves along paths through the basalt.

(Figure 2.10). Most of the carvings are textual, of which four are of particular interest. Three mention an enclosure and one mentions camping.[10] These inscriptions may indicate that the enclosures were used or even constructed by the authors of the inscriptions; the ambiguity of the texts allows for either interpretation (Al-Jallad 2015). The excavation of one of the enclosures and the dating of its fire pits yielded only post-15th century AD dates, but this does not exclude an earlier construction date (Huigens 2018: 133). Preservation is poor at many of the sites with a lot of erosion; older remains may therefore not have been preserved. Similar results were obtained from other excavated enclosures and clearings with concentrations of Safaitic carvings. For example, at QUR-1016, there is an enclosure, several clearings, and 73 composite carvings (Figure 6.29). One of the inscriptions refers to 'the enclosure'.[11] The excavated fire pits, all located inside the enclosure, were dated to after the 15th century (Huigens 2018: 133). However, again, this does not exclude the enclosure being constructed and used in much earlier periods as well. The various enclosures and clearings in the landscape may therefore have been used by the carvers of the Safaitic inscriptions and rock art, just like the older desert kites and wheels.

The carving sites often also correlate with (burial) cairns. However, in most cases it is currently not known whether the cairn was built before, around the same time as, or after the production of the Safaitic carvings. Therefore, it cannot be deduced whether there is an actual relationship between the structures and the engravings or whether the relationship is only spatial. There are a number of sites for which it is possible to draw some conclusions about this. One of these is the site where one of the three inscriptions in the Jebel Qurma region referring to 'the cairn' is located (see Chapter 2). At this site, QUR-215, there is a concentration of 71 composite carvings, a large cairn and pendant, and a small cairn (Figure 6.30). One of the Safaitic inscription states 'For Ms¹k son of ʿmr is the cairn'.[12] The cairn at this site was excavated, which revealed that it was first used for a burial between the 4th and 2nd centuries BC (Huigens 2018: 156; P. Akkermans pers.comm. 2018). The construction of the pendant can be placed to between the 6th century BC and early 1st century AD (Huigens 2018: 158). It is therefore possible that the inscription refers to the 4th to 2nd century BC burial. If so, it would suggest an early date for the inscription. However, there is also a nearby cairn that has not been dated, which the inscription might refer to. It is thus not clear to which of these

[10] Inscriptions QUR-20.45.1, QUR-20.50.1, QUR-20.50.2, and QUR-20.50.3.

[11] QUR-1016.21.1

[12] QUR-215.28.1.

Figure 6.28. Site QUR-20 (indicated) and its enclosures are visible in the distance to the left of the wadi.

Figure 6.29. The slope of the hill along which the carvings at QUR-1016 are located. In the valley lies an enclosure and several clearings, but it is unclear if they date to the Hellenistic/Roman periods (cf. Huigens 2018, 133).

cairns the inscription refers, and what this then entails for the dating of the text, but it seems likely that the carving is associated with one of the two burial cairns.

The other sites all have cairns of the so-called tower tomb type. These cairn types and (very) large concentrations of carvings frequently occur together. Tower tombs have been identified at six sites: QUR-970, QUR-956, QUR-186, QUR-2, QUR-9, and QUR-148, and possibly at a seventh, QUR-64 (Figure 6.31) (Huigens 2018).[13] Five of these locations are also large carving sites. Only QUR-970 and QUR-9 have only very small concentrations: three and 24 composite carvings, respectively. The results of the surveys and excavations at QUR-186, QUR-956, and QUR-2 suggest that the cairns were built later than the production of (some of) the carvings.

At QUR-186, 398 composite carvings are located. They are distributed in a tight concentration around the top of the hill where a cairn of the tower tomb type is also situated. Although at first glance the petroglyphs appear to cluster around the cairn, it is not clear whether there is a direct relationship between the carvings and structure. The survey and excavation of the cairn revealed that one of the stones used to build the façade was engraved with a Safaitic inscription and a camel, which is now upside down (Figure 6.32). The position of this rock art panel indicates that the boulder was located elsewhere when it was carved and later used as a building block for the cairn. The skeletal remains in the tomb have been dated to between the 2nd and early 4th century AD based on a radiocarbon date, but the tower construction itself could be older because there are indications for reuse (Huigens 2018: 188). The engraving was thus made prior to the 2nd to 4th century AD. This could indicate that the Safaitic carvings at the site pre-date the construction of the cairn. However, there is also the possibility that *some* of the carvings at the site were made before the cairn was built and that some were carved later. Based on this data, it is not possible to establish that all of the Safaitic carvings at QUR-186 pre-date the 2nd to 4th century AD, but the engraving of the camel and inscription at least does.

Similar results were obtained from the site QUR-956, the site informally referred to as the Cairn of the Dogs during the survey, due to it containing the only known occurrence of a signed depiction of dogs in Safaitic rock art (see Chapter 4.4.5). Here 154 composite carvings and a tower tomb cairn are situated on the peak of the hill. The cairn was first constructed in late prehistory and subsequently reused in the Early

[13] Several more have been identified in the 2017 and 2018 fieldwork campaigns.

Figure 6.30. Two members of the fieldwork team sitting between the two cairns at QUR-215.

Roman period, as evidenced by the human skeletal remains that have been dated to between the late 1st and early 3rd century AD (Huigens 2018: 173). The reuse phase included the construction of a cover over the tomb (Huigens 2018: 173). The textual and pictorial engravings occur around the cairn and on the later cover of stones. Their position in the cover suggests that they had already been carved elsewhere and that the boulders were then used to construct the cover. This would indicate that the engravings pre-date the 1st to 3rd century AD.

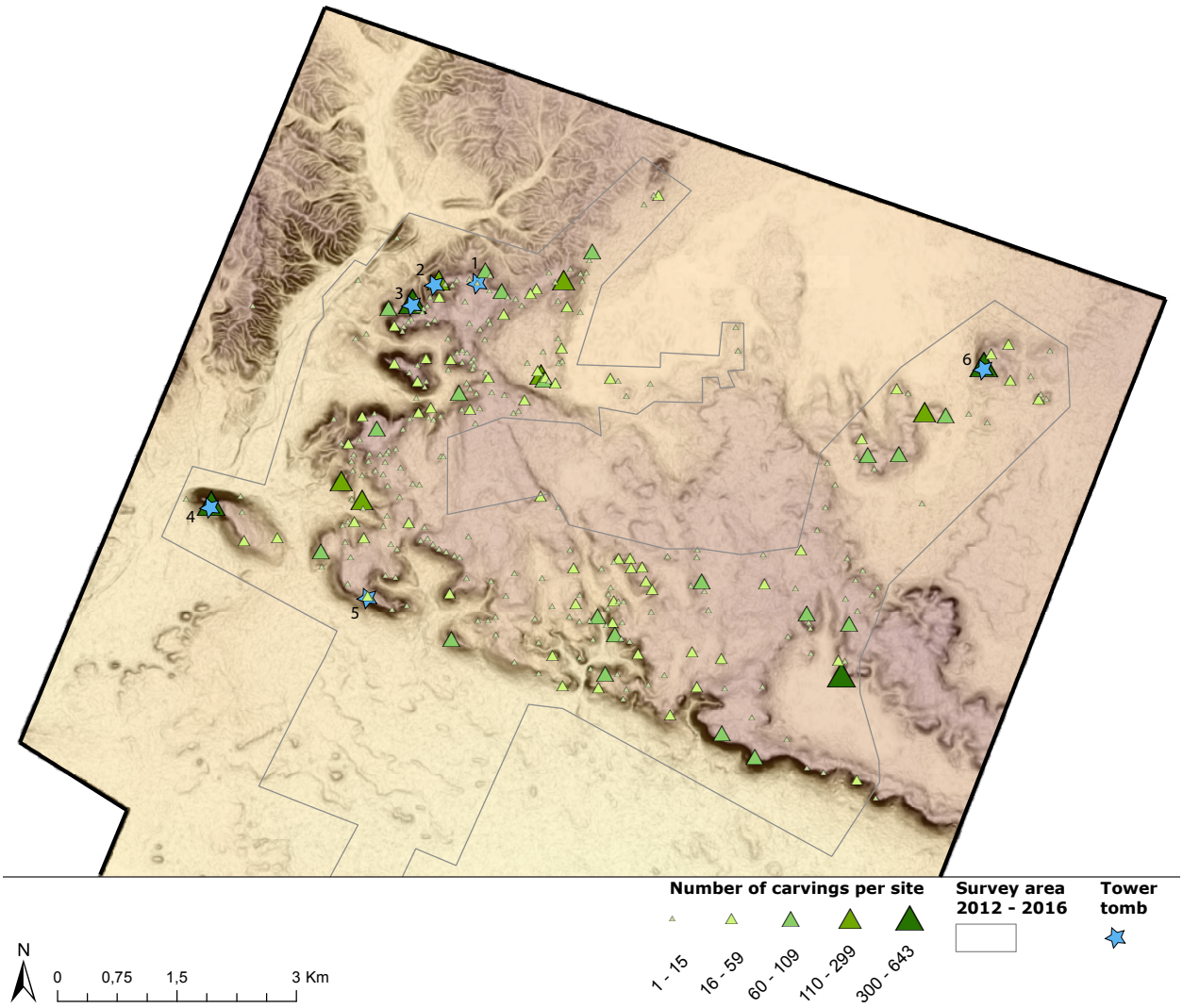


Figure 6.31. The distribution of carvings and tower tombs in the Jebel Qurma area. Sites: 1) QUR-970; 2) QUR-956; 3) QUR-186; 4) QUR-2; 5) QUR-9; 6) QUR-148.QUR-64 is not included on this map but may also have a tower tomb.

Figure 6.32. The tower tomb at QUR-186 with an engraved panel incorporated into the façade of the structure. The camel figure (indicated by the arrow) is upside down, suggesting the boulder was already carved before it was used as a building block. Scale bar = 50 cm.

Figure 6.33. The row of cairns (indicated) situated along the Jebel Qurma hill. An inscription is visible in the foreground on the right.

Lastly, at QUR-2 the tower tomb also post-dates the Safaitic carvings. This site, situated on the hill of Jebel Qurma, has the largest concentration of carvings in the region. The hill is long and structures are spread out down across it, including a total of 18 cairns (Figure 6.33). However, the Safaitic engravings cluster at the north-western end of the hill, around the highest peak and the first cairns seen from the west. One of these cairns, the largest at QUR-2 and situated on the highest point of the hill, was excavated. The burial cairn is of the tower tomb type and proved to have been reused during several phases (Huigens 2018: 177). Several Safaitic inscriptions were incorporated within the structure, including one which was situated on a panel in the 'seams' of the tower (Huigens 2018: Figure 5.34). The engraving must thus already have been present on the panel before it was used to build the cairn. OSL and radiocarbon dates of the tower tomb indicate that it was constructed prior to the 1st century BC (Huigens 2018: 192), suggesting this engraving pre-dates the 1st century BC, but by how much is not clear. Like at the other two sites, it therefore appears that at least some of the carvings were present at the site already before the burial tombs were built, using engraved boulders as building material. These cairns thus provide a *terminus ante quem* date for the carvings incorporated in the structures and these dates fit with the conventional dating of Safaitic carvings, from between the 1st century BC to the 4th century AD. Yet, in all three cases, earlier dates are possible, which would push the dates of the incorporated Safaitic carvings back to before the 1st century BC. However, whether the carving was made months, years, or centuries prior to the construction of the cairn cannot be discerned. It is curious though that, first, the tower tombs and large carving sites are located in similar places in the landscape and, second, the cairns were sometimes constructed with engraved stones, apparently disregarding the carvings.

6.4. Accessibility and visibility

Based on the results of this study of the spatial distribution within the landscape, there are two factors that provide an interesting basis for further investigation: accessibility and visibility. How accessible were these places for producers of the rock art and for subsequent consumers? What was the visibility like of and from the places of production and consumption? In the following section, I investigate these questions through a number of analyses based on models of the Jebel Qurma landscape (see Chapter 3.6.2). Each analysis is carried out twice. First by calculating the number of composite carvings *per site* for the whole region. Subsequently, by calculating the number of composite carvings *per boulder* for the north-western area.

6.4.1. Hillslopes

The distribution of carvings shows that carving sites are often situated in high locations and on the edges of hills, at the top of the slope. To gain a more detailed picture of the relation between carving sites and hills and slopes, it is possible to study the distribution based on a quantification of the landscape topography. Huigens (2018, 34, Figure 2.14) has modelled this for Jebel Qurma in a Hillslope Position Classification, which classifies the topography of the landscape in relative terms. It highlights topographic highs and lows, relative to their surrounding landscape. Additionally, it identifies the type of slope, i.e. steep slope, modest slope, or the ridge. It is thereby possible to plot the distribution of carving sites in relation to the topography (Figure 6.34). This confirms that the majority of carving sites are located on topographic highs in the landscape. A large number of sites are also located on either the ridges of hills or on a modest slope. Looking at the more detailed distribution of carvings per boulder in the north-western area (Figure 6.35), it appears that the majority of carvings are located on steep slopes, followed fairly equally by topographic highs, lows, and modest slopes. Interestingly, most boulders with carvings are situated on the edge of topographic zones, often between topographic highs and the slope. These locations would have been the best lookout points on the hilltops, supporting the hypothesis that the carvings accumulated at vantage points.

6.4.2. Cost of movement

The carvings appear to cluster in areas that might be easily accessible via routes through low-lying areas, but that the actual sites are more difficult to access due to their being located on top of hills. The distribution of sites in relation to the Hillslope Position Classification confirms their presence on topographic highs and steep slopes. In Figure 6.36 the sites are plotted on a Cost Surface Raster, which assumes that slope degrees and surface cover are the two main factors affecting movement through the landscape (Huigens 2018, 39, Figure 2.21). The distribution of the rock art in relation to the Cost Surface Raster shows that the main concentrations of sites are indeed associated with areas that entail a high cost of movement. The majority of sites are located in areas that are on the second highest scale of the cost of movement. However, the surrounding areas tend to have a low cost of movement. For example, the model confirms that the sites located in the southern area around the small wadi could be reached with a relatively low cost of movement through the wadi valley. Looking at the detailed distribution of carvings in the north-western area, the tendency towards places with a high cost of movement is more pronounced (Figure 6.37). This suggests that

the locations of the carvings themselves would have been difficult to access or at least require a relatively great amount of effort/time. However, the surrounding plains and mudflat provide routes with a relatively low cost of movement. Therefore, it appears that the basalt hills where sites are situated are relatively easy to access, but that the carvings themselves are not. Additionally, it is not easy to move between carving sites as this requires a high cost of movement across the basalt hills or plateau. Only the middle of the plateau entails a slightly lower cost of movement.

6.4.3. Visibility of sites

The visibility to and from places in the Jebel Qurma landscape is determined by the particular nature of the topography in this region. Large hills provide panoramic views and can often be seen from afar, while smaller hills and plateaus can be hidden from view until one is close by. The present vegetation is limited and low and therefore does not affect visibility (Huigens 2018: 43). The visibility of carving concentrations can be studied through a comparison with the Visual Prominence Classification (Figure 6.38). This model is based on a cumulative viewshed and illustrates which areas are most visible from many places in the landscape (Huigens 2018: 44, Figure 2.26). It shows that the entire southern ridge of the basalt plateau is highly visible, as are some of the hills and plateaus further north. Many sites are situated along this ridge and their locations would thus have been visible from afar. In contrast, the area around Wadi Rajil has low visibility. This is further illustrated in Figure 6.39, which plots the location of individual boulders with carvings on the Visual Prominence Classification. Both figures illustrate that there is no clear correlation between large concentrations of carvings and visually prominent places in the landscape. However, because the Visual Prominence Classification is based on a cumulative viewshed, it does not show that, for example, the hills on which QUR-952, QUR-186, and QUR-956 are located on are highly visible locally, from the Wadi Rajil valley. Additionally, it does not illustrate the visibility of sites from one another.

The Skyline model shows which areas dominate the horizon, based on views from topographic lows in the landscape (Huigens 2018: 45, Figure 2.27). Not surprisingly, the southern basalt hills are highly visible and especially the Jebel Qurma hill dominates the skyline. On average, carving sites are not associated with a high percentage of visible areas (Figure 6.40). However, sites with high concentrations of carvings appear to be situated in areas that are highly visible on the horizon, while small sites are more often located in areas with low visibility. This model also illustrates the prominence of the large hills in the north-western area, such as the hill of QUR-952. Looking at the distribution of individual carvings in this area, the correlation with highly visible locations is stronger (Figure 6.41). This correlation is unsurprising considering the earlier observations that the carvings tend to cluster on high hills, which are very visible in the landscape. In the Skyline model, the contrast between the prominent hills on the basalt plateau and the low hills along the mudflat is also clearly illustrated. Interestingly, both areas have a high concentration of carvings. Therefore, in this area, there does not appear to be a strong association between large carving sites and visibility of their locations. Furthermore, the carvings themselves would also not have been visible from afar. When in the field, the rock art and inscriptions were generally not visible until one came within close range of them, whether they were weathered orange-red or freshly cut and thus bright grey. This was the case when approaching them from across the basalt but even more so when climbing up the slope of the hill to the top where the carvings were located.

6.4.4. Visibility from sites

To study the visibility *from* carving sites, several viewshed analyses have been carried out. The sheer number of sites meant that a selection needed to be made. A selection of nine sites was made from sites in the north-western area (Figure 6.42). This selection includes the four largest sites in the area: QUR-186, QUR-171, QUR-956, and QUR-176. It includes three medium-sized sites: QUR-952, QUR-965, and QUR-1016. QUR-952 was selected as the fifth largest site in this area and for its location in the row of hilltop carving concentrations together with QUR-186 and QUR-956. QUR-965 is situated a little further along on this basalt plateau and does not have an equally prominent location as the other sites. However, as observed earlier, it does appear to provide a good view of the surrounding valley. A viewshed analysis has therefore been performed for this site to test this observation. QUR-1016 is part of a larger concentration of rock art and inscriptions along a low basalt hill together with QUR-171 and QUR-839. While QUR-171 is located on top of this hill, QUR-1016 is situated along the slope facing the small valley. It is therefore interesting to compare the visibility from these two sites.

Lastly, I selected two sites with very little rock art, QUR-970 and QUR-796, to compare the visibility from sites where very few Safaitic carvings were found. QUR-970 has a tower tomb and thus shares some similarities with the aforementioned sites. But it has only three carvings and it is not located as close to the edge of the plateau as the larger sites. QUR-796 is one of the sites situated most inland on this basalt plateau and contains only seven carvings.

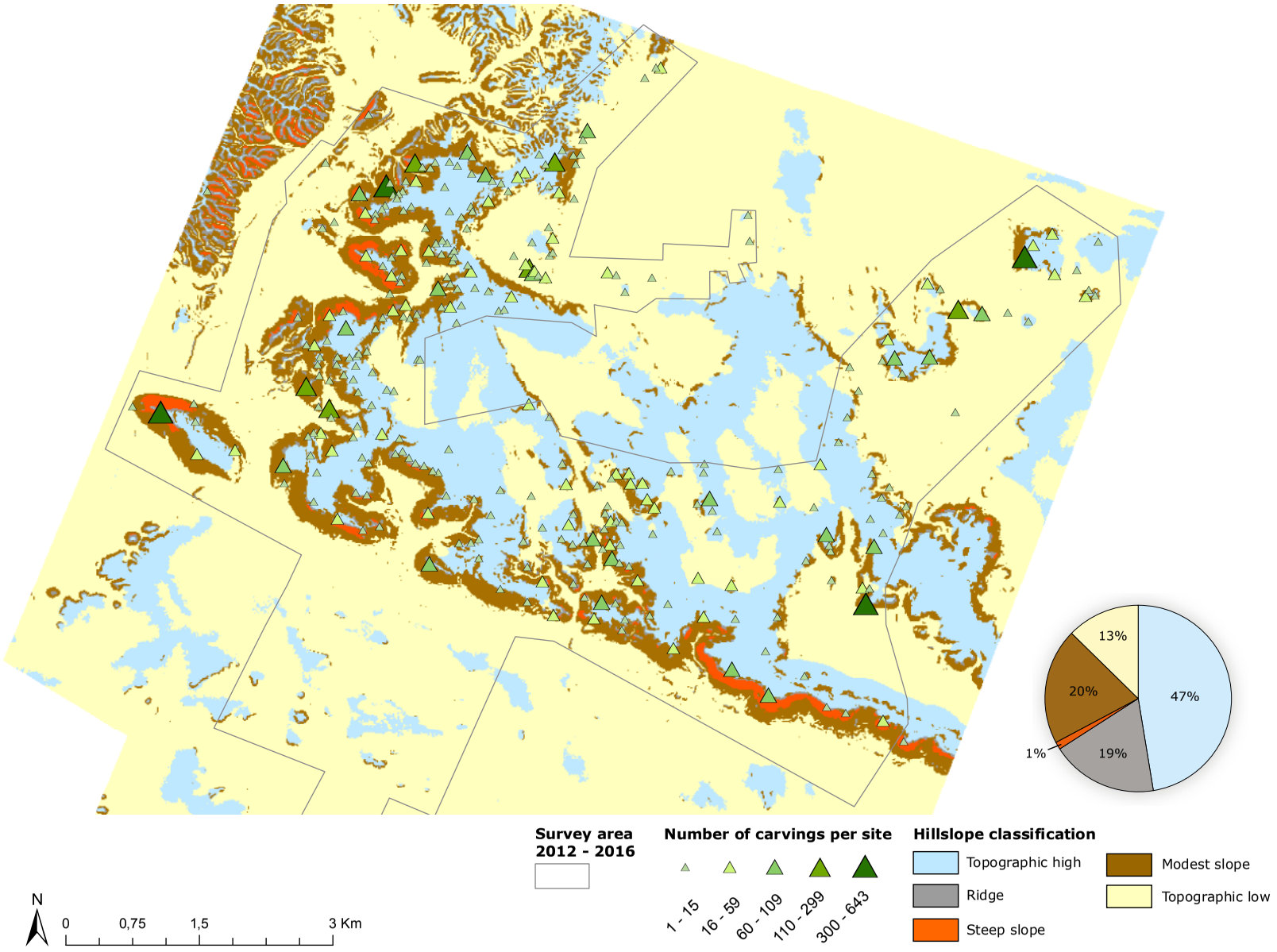


Figure 6.34. Distribution of carving sites plotted on a Hillslope Position Classification. Graph: proportion of sites per classification. Base map: HPC, Huigens (2018).

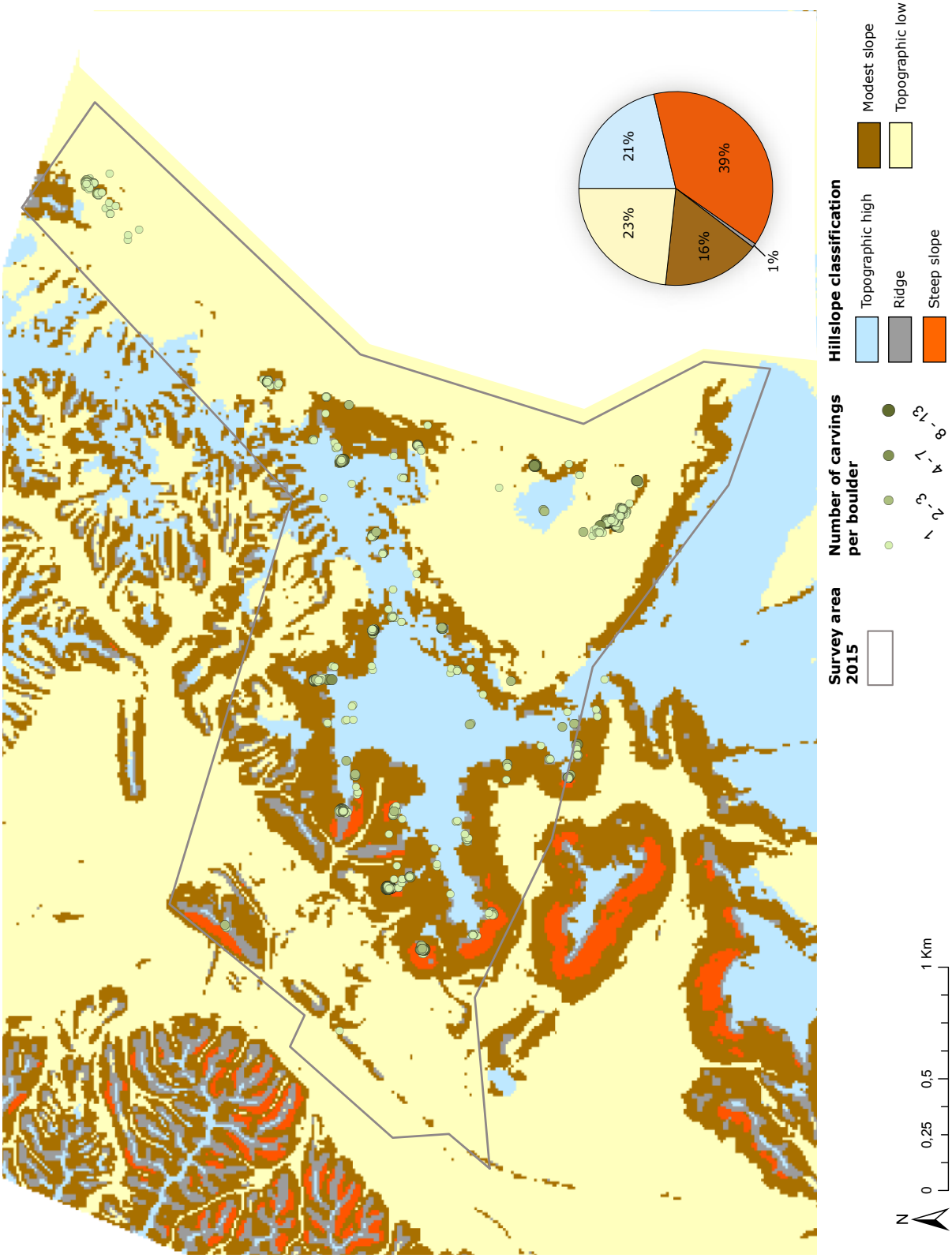


Figure 6.35. Distribution of carved boulders in the north-western area plotted on a Hillslope Position Classification. Graph: proportion of sites per classification. Base map: HPC, Huigens (2018).

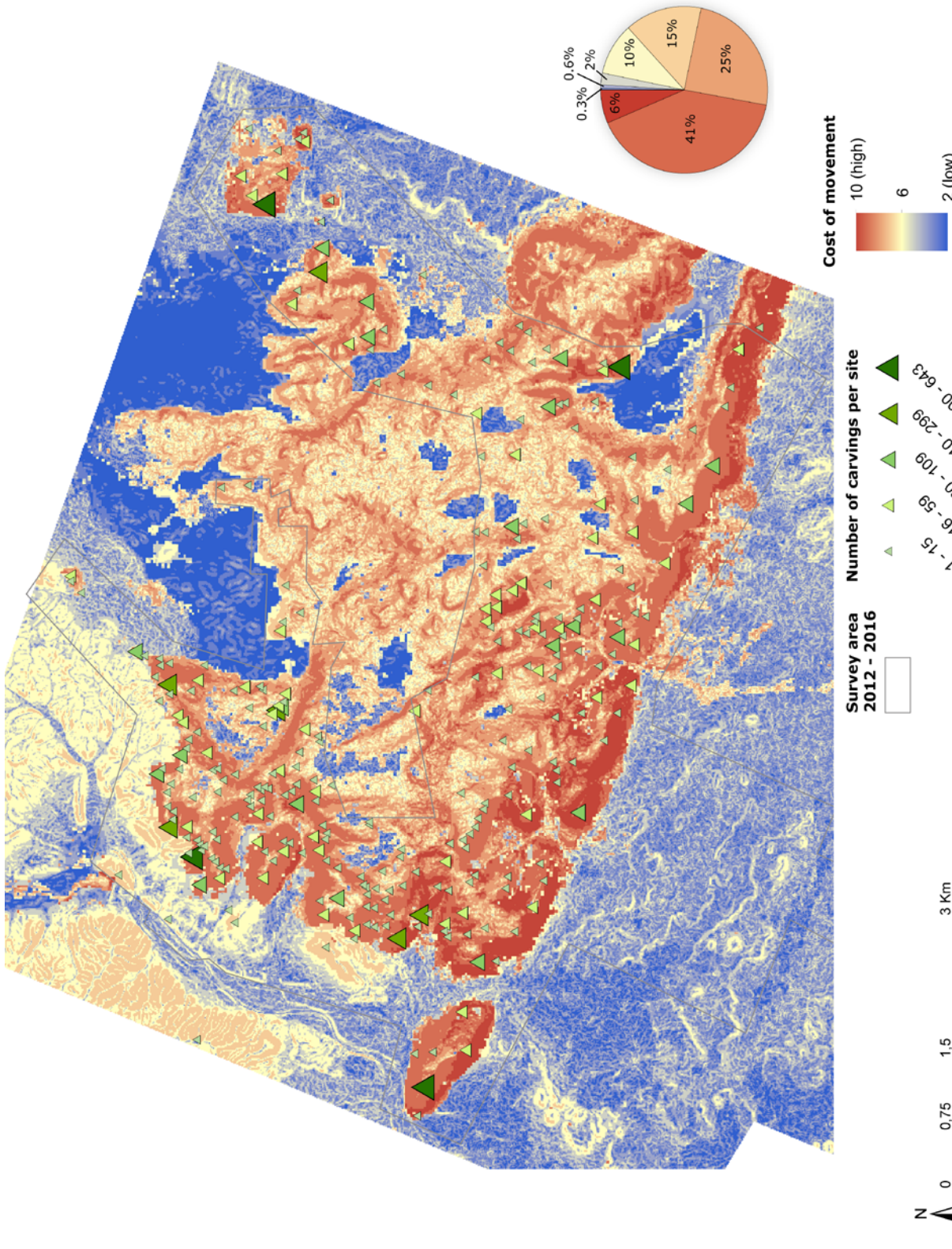


Figure 6.36. Distribution of carving sites plotted on a Cost Surface Raster. Graph: proportion of sites per classification. Base map: Cost Surface Raster, Huigens (2018)

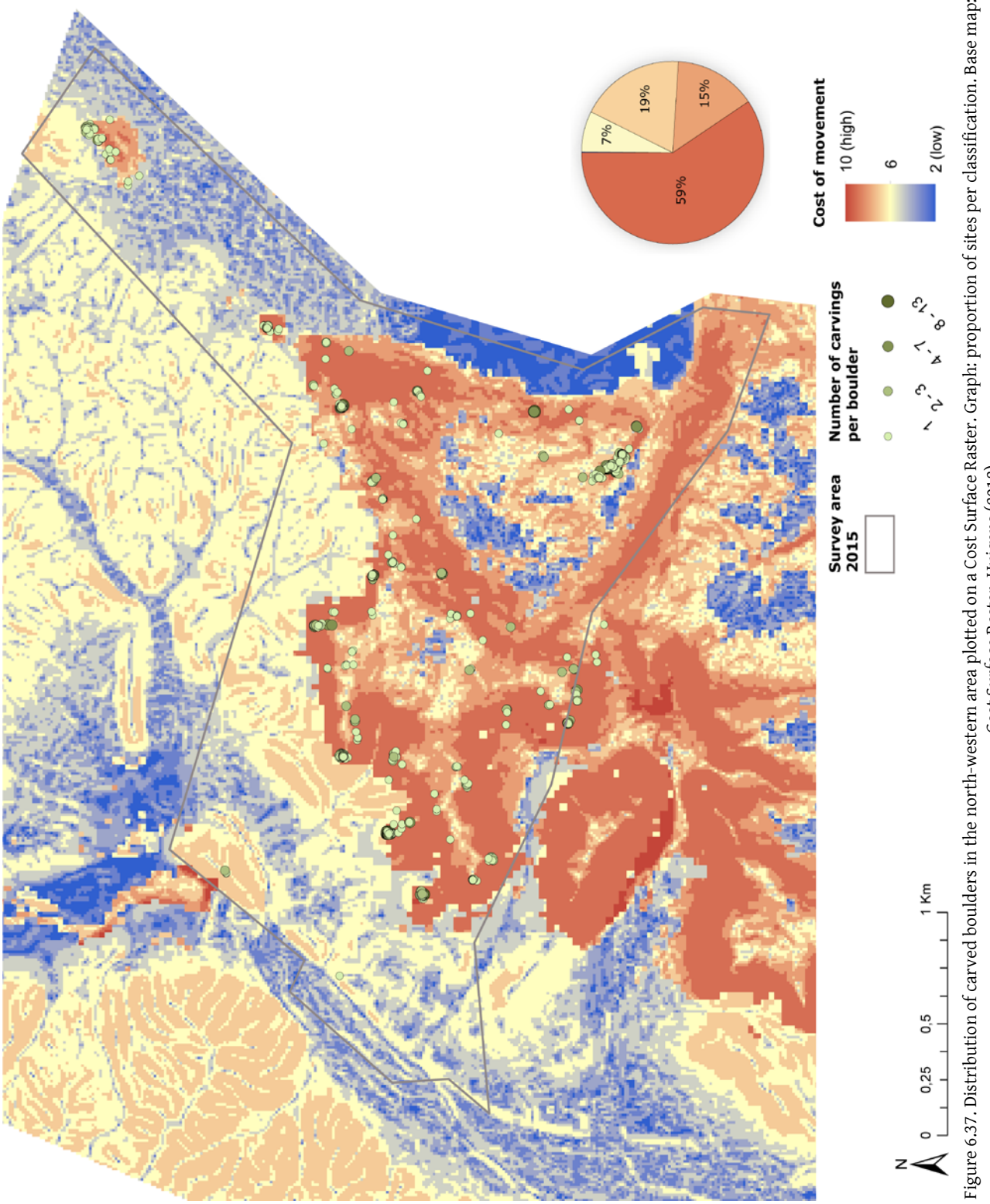


Figure 6.37. Distribution of carved boulders in the north-western area plotted on a Cost Surface Raster. Graph: proportion of sites per classification. Base map: Cost Surface Raster, Huigens (2018)

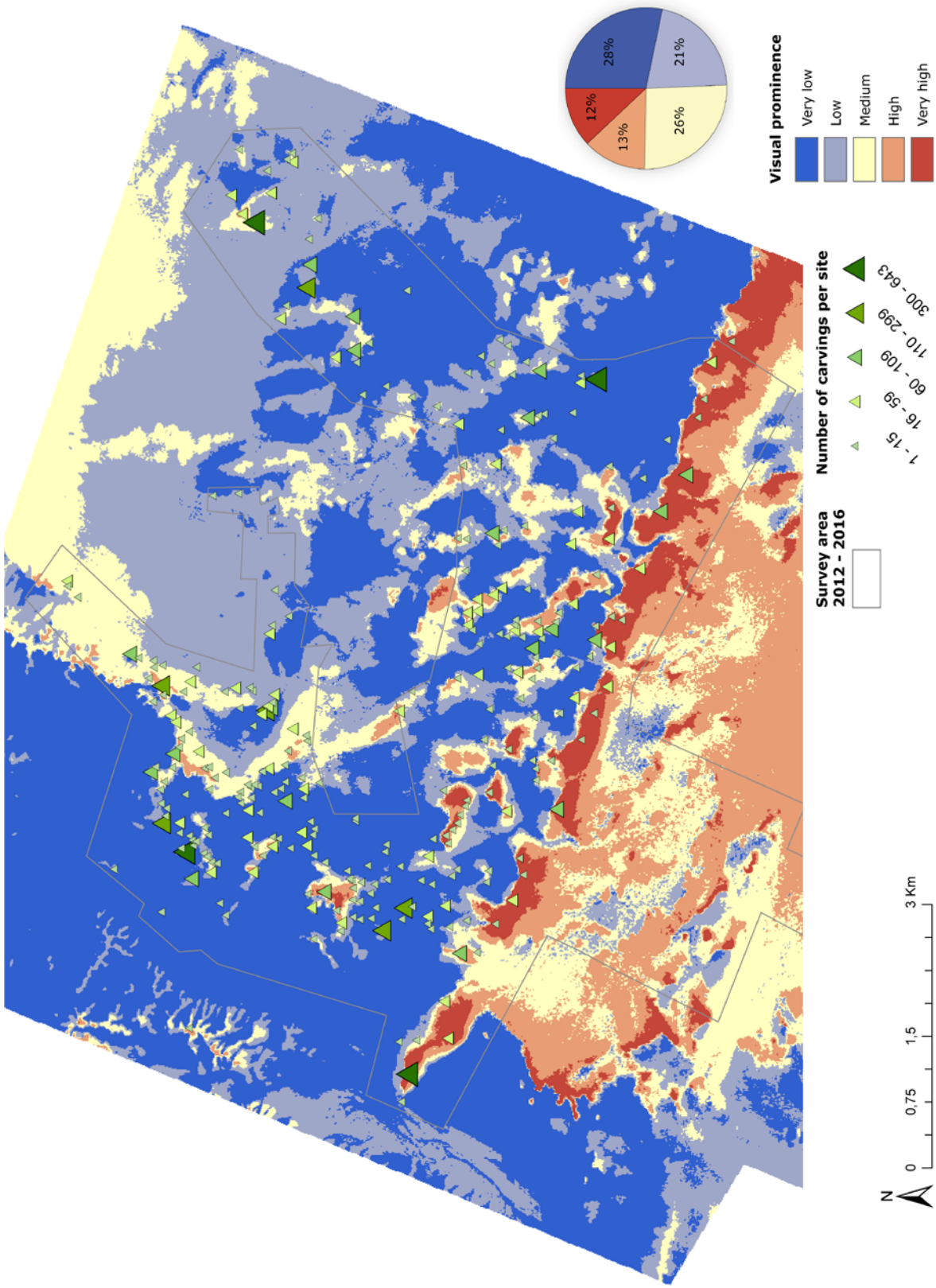


Figure 6.38. Distribution of carving sites plotted on a Visual Prominence Classification. Graph: proportion of sites per classification. Base map: Visual Prominence Classification (Huigens 2018)

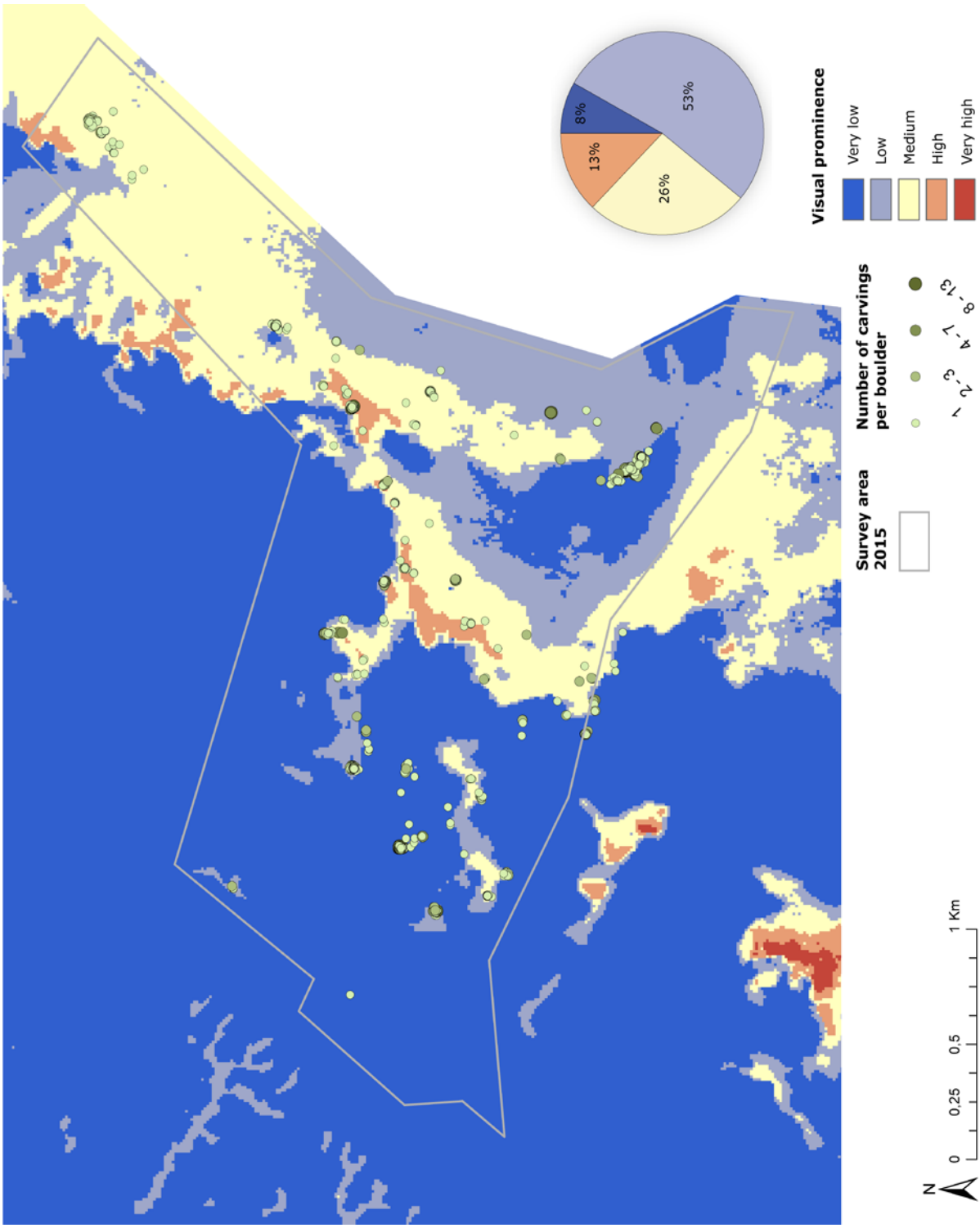


Figure 6.39. Distribution of carved boulders in the north-western area plotted on a Visual Prominence Classification. Graph: proportion of sites per classification. Base map: Visual Prominence Classification (Huigens 2018)

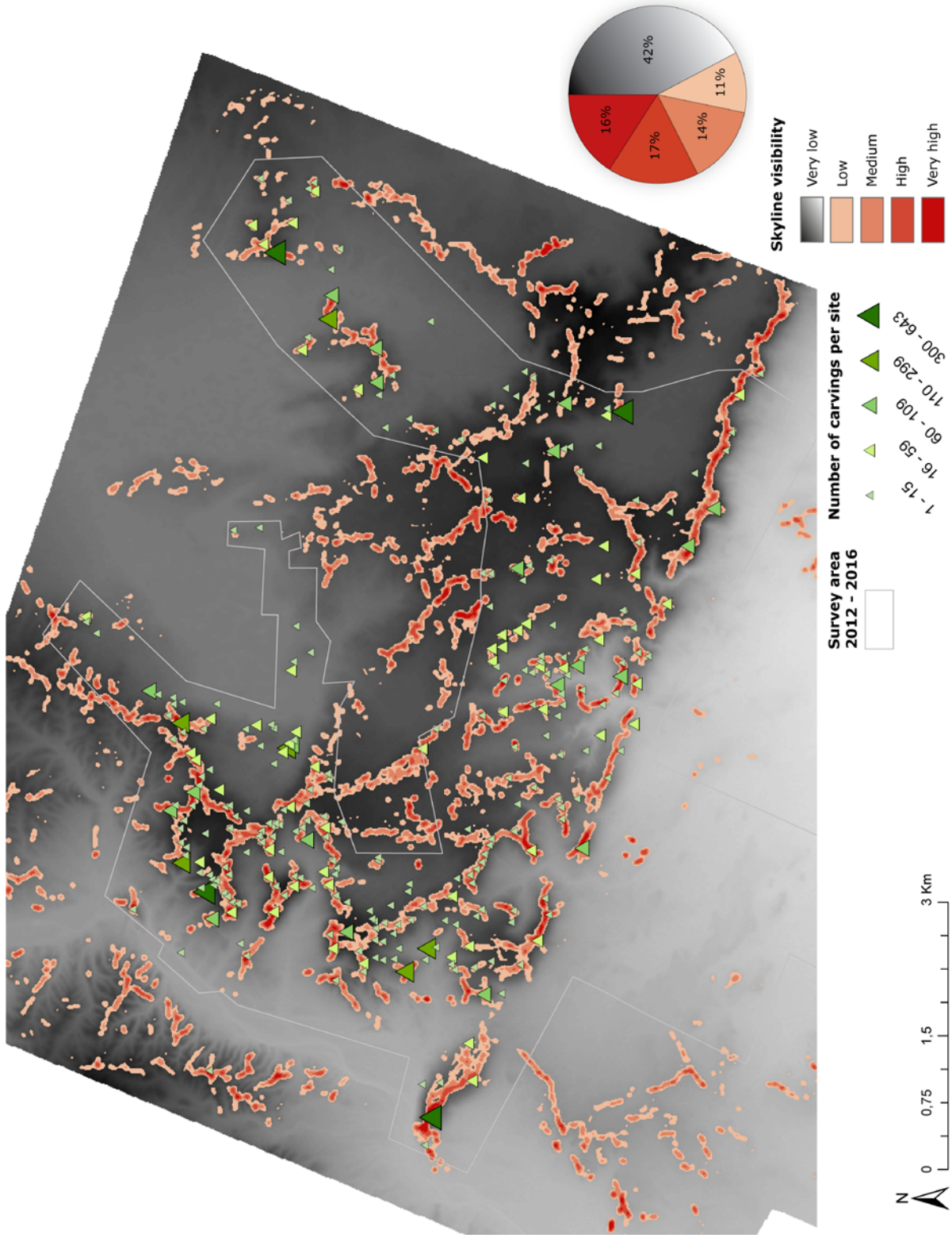


Figure 6.40. Distribution of carving sites plotted on a Skyline model. Graph: proportion of sites per classification. Base map: Skyline model (Huigens 2018)

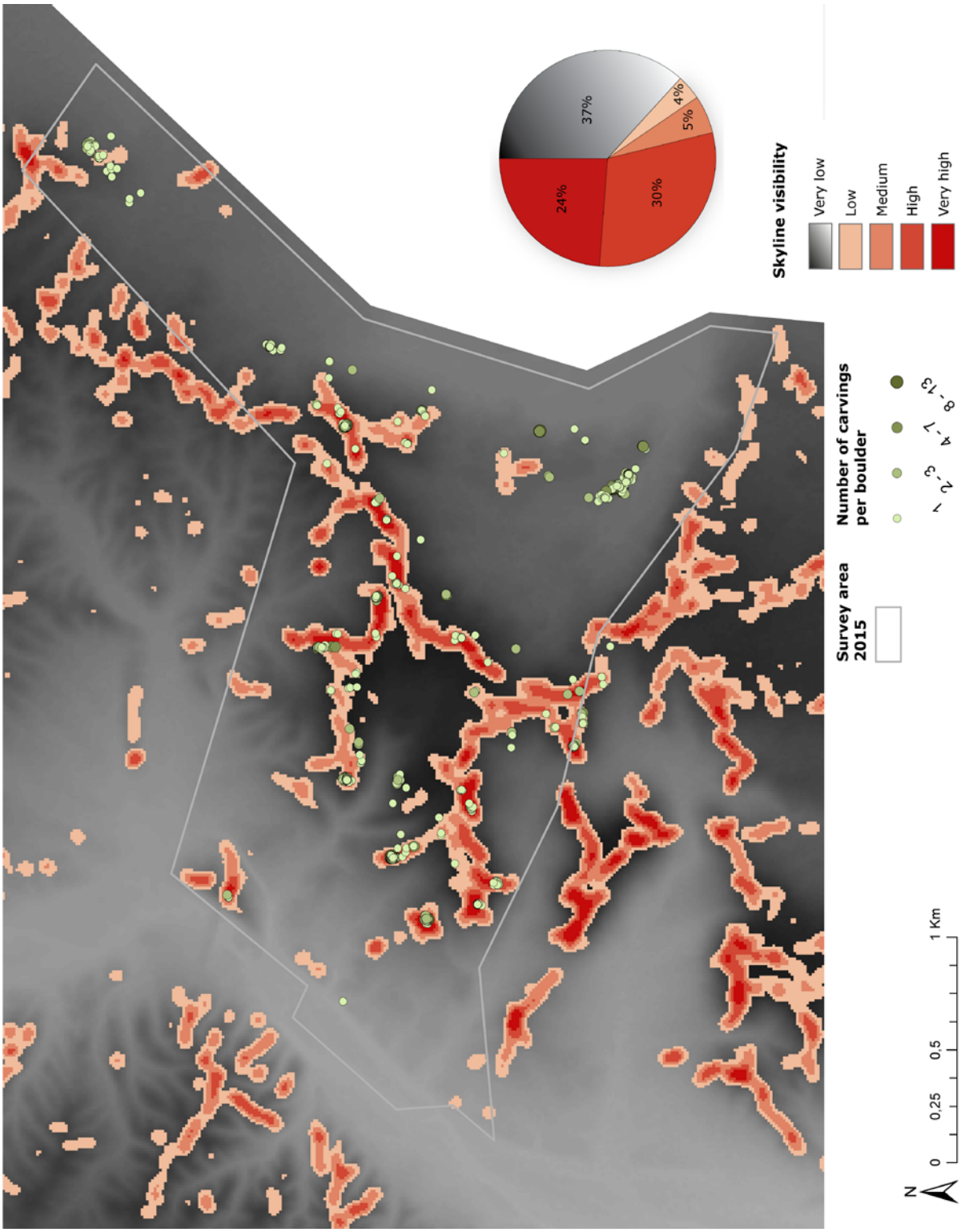


Figure 6.41. Distribution of carved boulders in the north-western area plotted on a Skyline model. Graph: proportion of sites per classification. Base map: Skyline model (Huigens 2018)

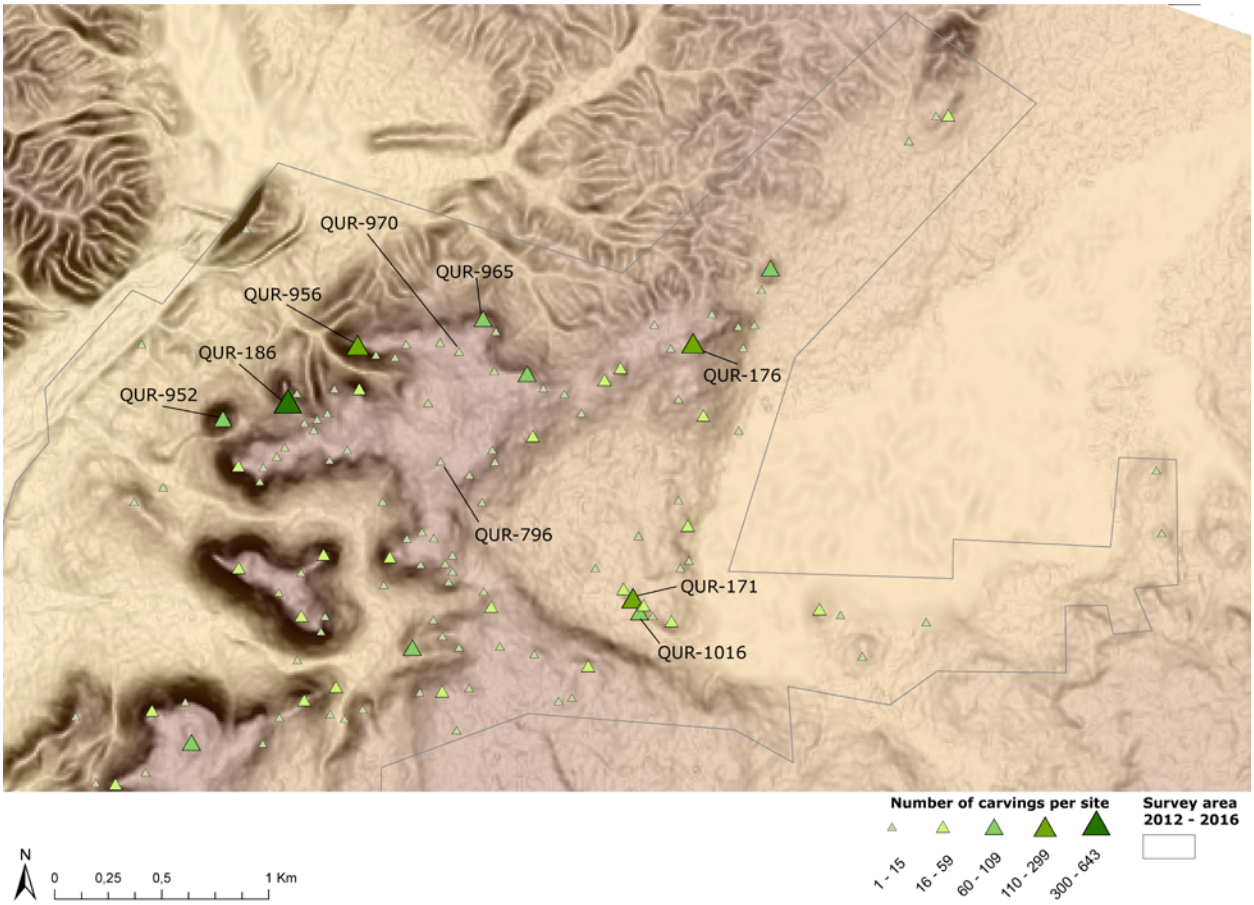


Figure 6.42. Carving sites per size in the north-western area. The sites for which viewshed analyses have been carried out have been labelled.

For all nine sites, I selected a carved boulder in the centre of the concentration of engravings as the observer point. As is per usual, an observer offset of 1.7 m was used as the average height of a person. The following models thus illustrate what is visible for a person of average height standing in the middle of carving concentrations at nine locations in the landscape.

The position of QUR-952 on a prominent hill next to Wadi Rajil suggests good visibility from this location and the viewshed analysis confirms this (Figure 6.43). The entire valley of Wadi Rajil is visible from north to south and even the Jebel Qurma hill in the distance is visible on the horizon. It would thus have been a very good lookout point for the surrounding areas below. In contrast, only a small part of the basalt plateau behind the site, to the east, is visible. The viewshed also confirms that one can see the hills of QUR-186 and QUR-956 from this location.

From QUR-186 the visibility extends only slightly less far than from QUR-952; most of the valley to the north and west is visible (Figure 6.44). Additionally, the valley directly below the site can be seen, as can the hills of QUR-952 and QUR-956. From QUR-956 the hilltops of the previous two sites are visible too (Figure 6.45). The visibility from this site is comparable to that from QUR-186, with only less visibility to the south. Similar to the other two sites, the view towards the south and east across the basalt plateau is poor. All three of these prominent locations thus provide good views of the Wadi Rajil and its valley, but the visibility is greatest from QUR-952.

In contrast, the visibility from QUR-965 extends much less far into the Wadi Rajil area, probably as a result of its position on a lower hill and at the northern end of the basalt plateau (Figure 6.46). However, earlier I observed that the site does provide a panoramic view of the valley directly below and the viewshed analysis confirms this. The model shows a 180˚ visibility from west to east in an approximately 0.5 km radius. Like the aforementioned sites, this location provides almost no visibility over the basalt plateau behind it.

In contrast, the view from QUR-176 does extend to the south over part of the plateau (Figure 6.47). However, the visibility from this location is especially dominated by the extensive view over the mudflat, Qa'a al-Teyarat. The viewshed illustrates the visibility across the entire mudflat towards the basalt hills in the east and the basalt plateau to the southeast. The great visibility

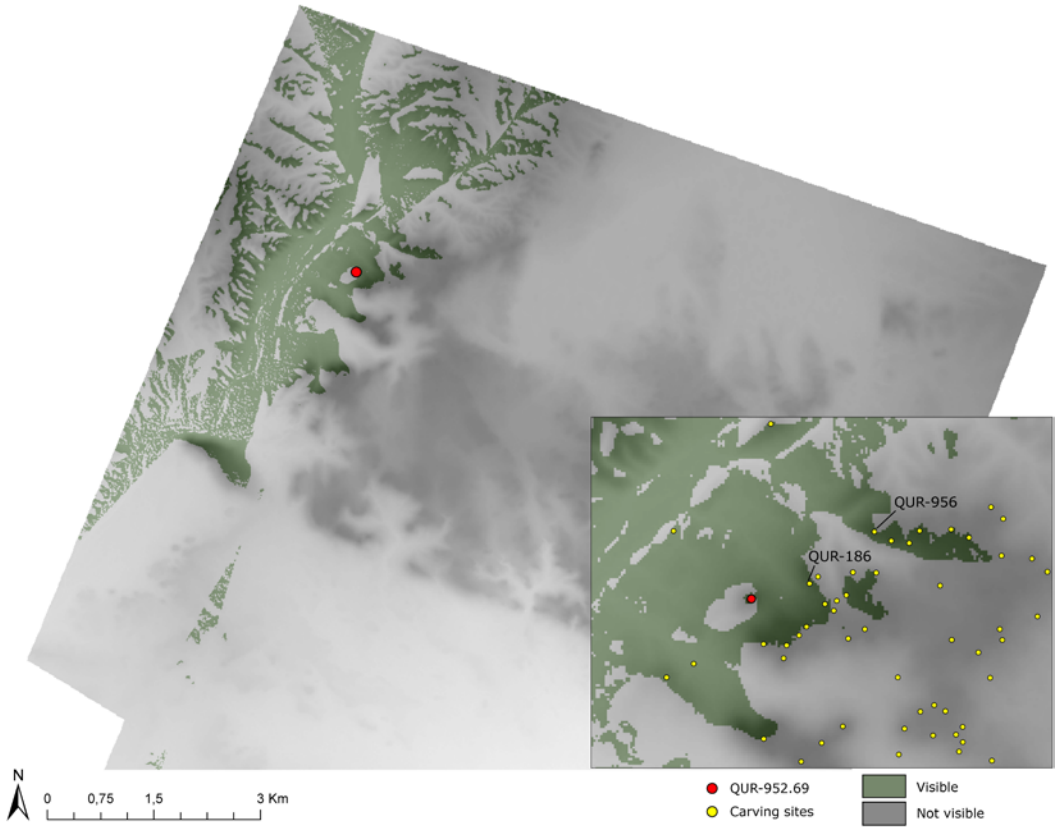


Figure 6.43. Viewshed analysis for QUR-952. Green areas represent what is visible from the location of QUR-952.69. Base map: WorldDEM. Insert: close-up of the viewshed model showing the location of other carving sites. The hills on which QUR-186 and QUR-956 are situated are visible.

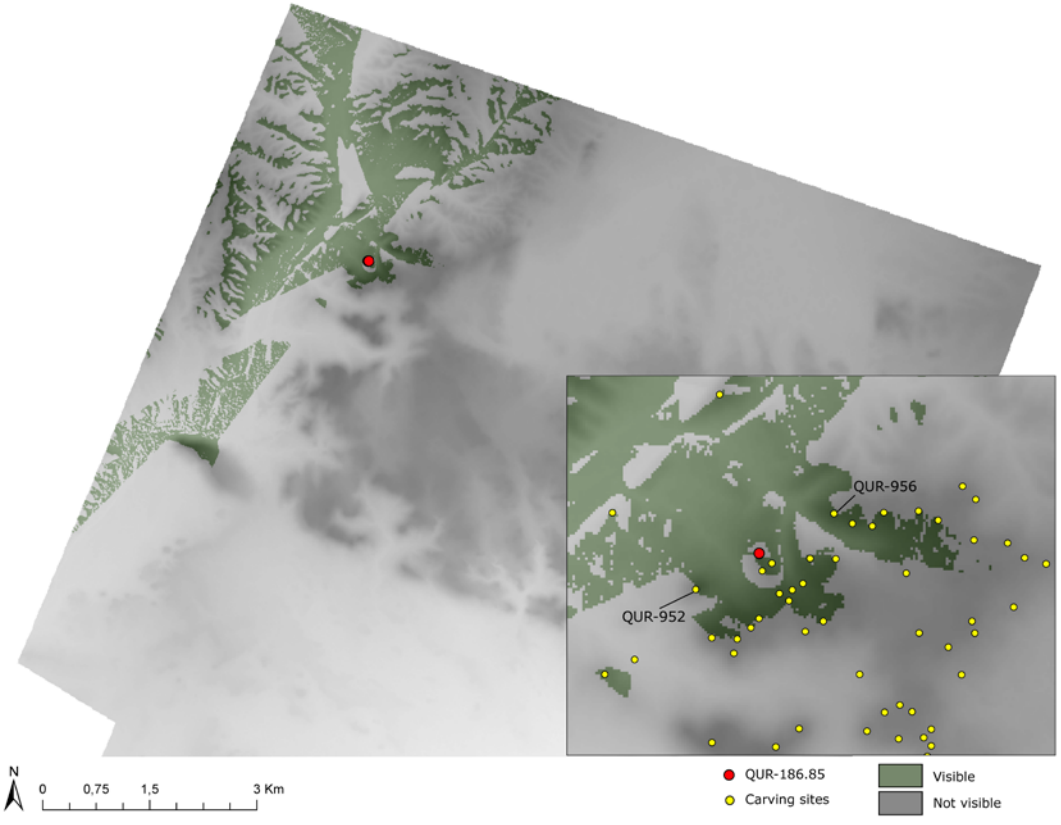


Figure 6.44. Viewshed analysis for QUR-186. Green areas represent what is visible from the location of QUR-186.85. Base map: WorldDEM. Insert: close-up of the viewshed model showing the location of other carving sites. The hills on which QUR-952 and QUR-956 are situated are visible.

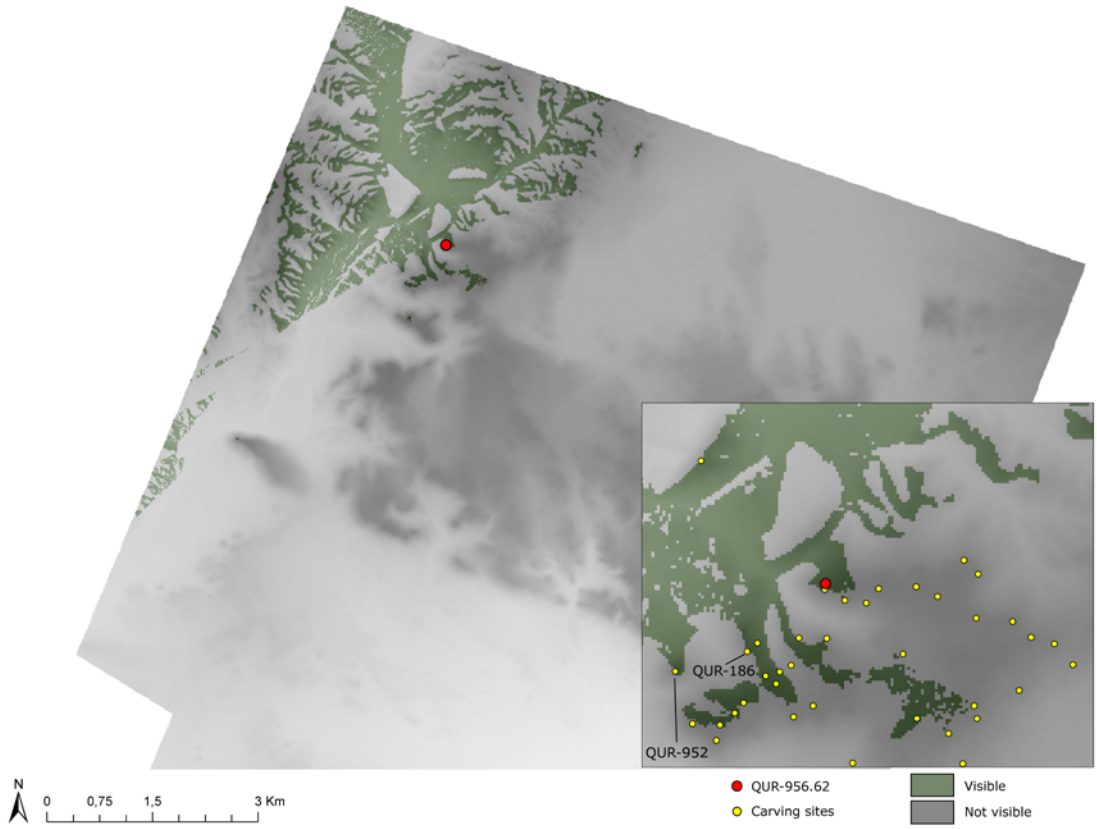


Figure 6.45. Viewshed analysis for QUR-956. Green areas represent what is visible from the location of QUR-956.62. Base map: WorldDEM. Insert: close-up of the viewshed model showing the location of other carving sites. The hills on which QUR-952 and QUR-186 are situated are visible.

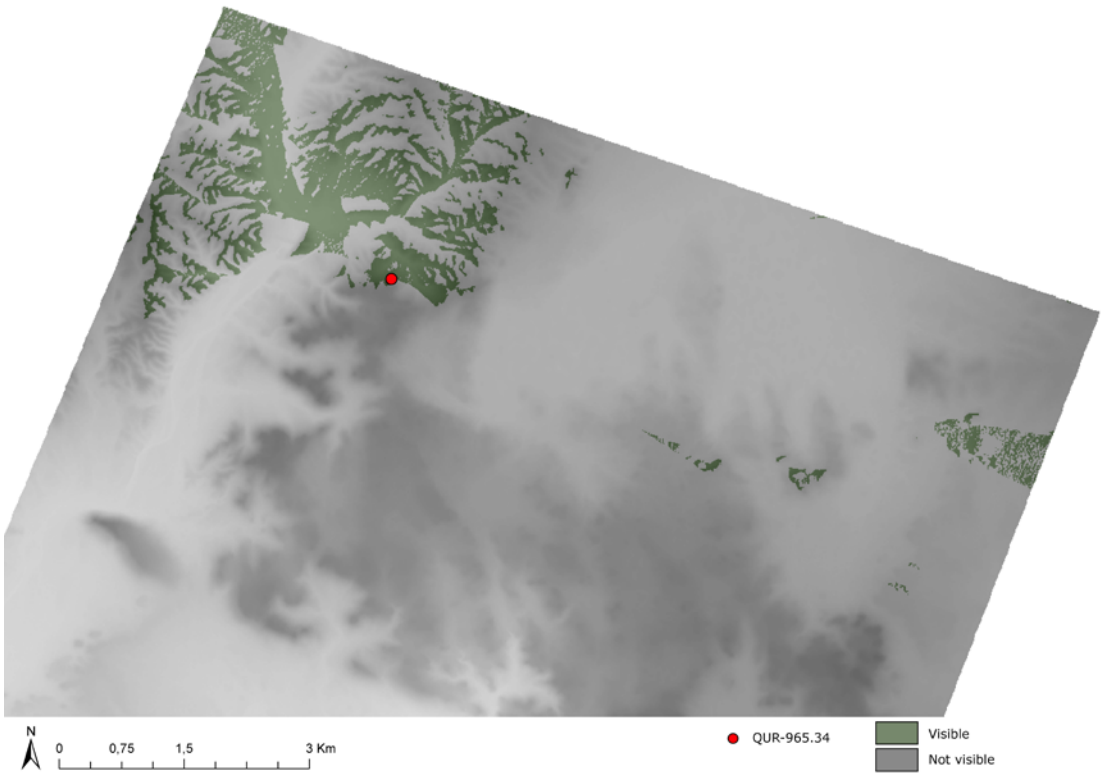


Figure 6.46. Viewshed analysis for QUR-965. Green areas represent what is visible from the location of QUR-965.34. Base map: WorldDEM.

from this carving site is on account of its position on the edge of the basalt plateau next to the mudflat and its high elevation.

Situated further to the south along the mudflat, QUR-171 also provides a good view across the Qa'a al-Teyarat (Figure 6.48). Despite its low elevation compared to other large carving sites, the visibility from this location is good. It extends to the edge of the basalt plateau to the northeast and south, after which the visibility is blocked by the higher hills. The view is therefore especially good of the valley directly surrounding this hill, including the many other carvings situated along this hill. In comparison, standing at the location of the cluster of carvings on the slope of this hill, site QUR-1016, one has only a limited view beyond the valley (Figure 6.49). The position on the slope provides good visibility down the valley from west to east, but the mudflat is no longer visible.

The viewshed analyses of QUR-970 and QUR-796 provide an interesting comparison to the large carving sites. From QUR-970 parts of the wadi valley to the north and the high basalt plateaus in the east are visible (Figure 6.50). This location provides a view across part of the basalt plateau on which the site is situated, rather than the surrounding valley. The viewshed of QUR-796 is similar. Large parts of the elevated basalt hills are visible, but the view that stands out the most is that of the basalt plateau directly surrounding the site (Figure 6.51). Its position further inland affords a view of the plateau, but not of the valley directly below the plateau.

6.5. Conclusion

The study of rock art in the landscape has time and again been demonstrated to provide invaluable insights into the significance of the material. Exploring the places of production and consumption can provide new insights into these processes and the people and ideas behind them. Furthermore, choices made in the production process and the effects on subsequent consumption may not only pertain to the wider macro-landscape, but also to the proximate micro-landscape. For this reason, this chapter examined the places of production and consumption of Safaitic rock art in Jebel Qurma on two levels: the micro-landscape and the macro-landscape.

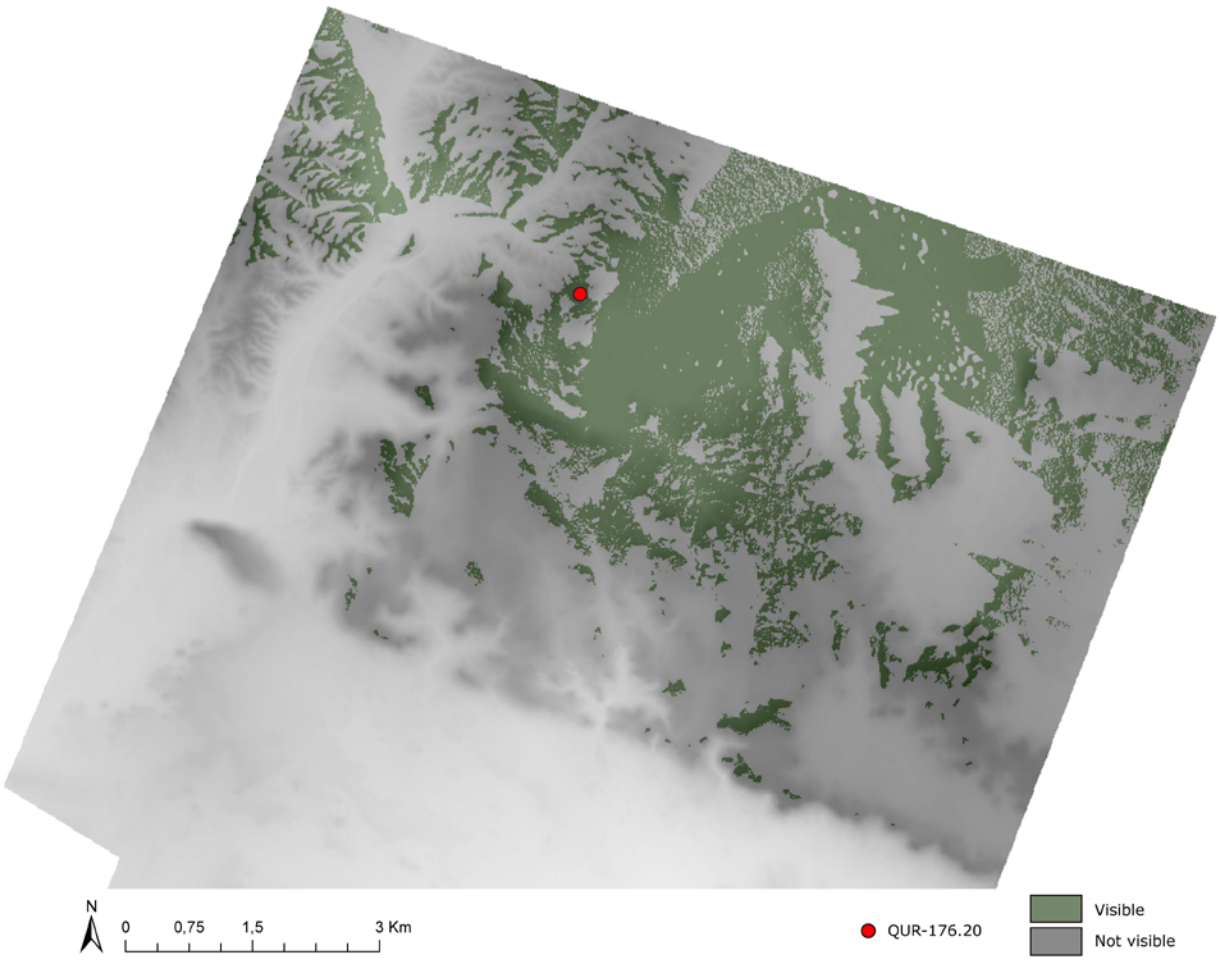


Figure 6.47. Viewshed analysis for QUR-176. Green areas represent what is visible from the location of QUR-176.20. Base map: WorldDEM.

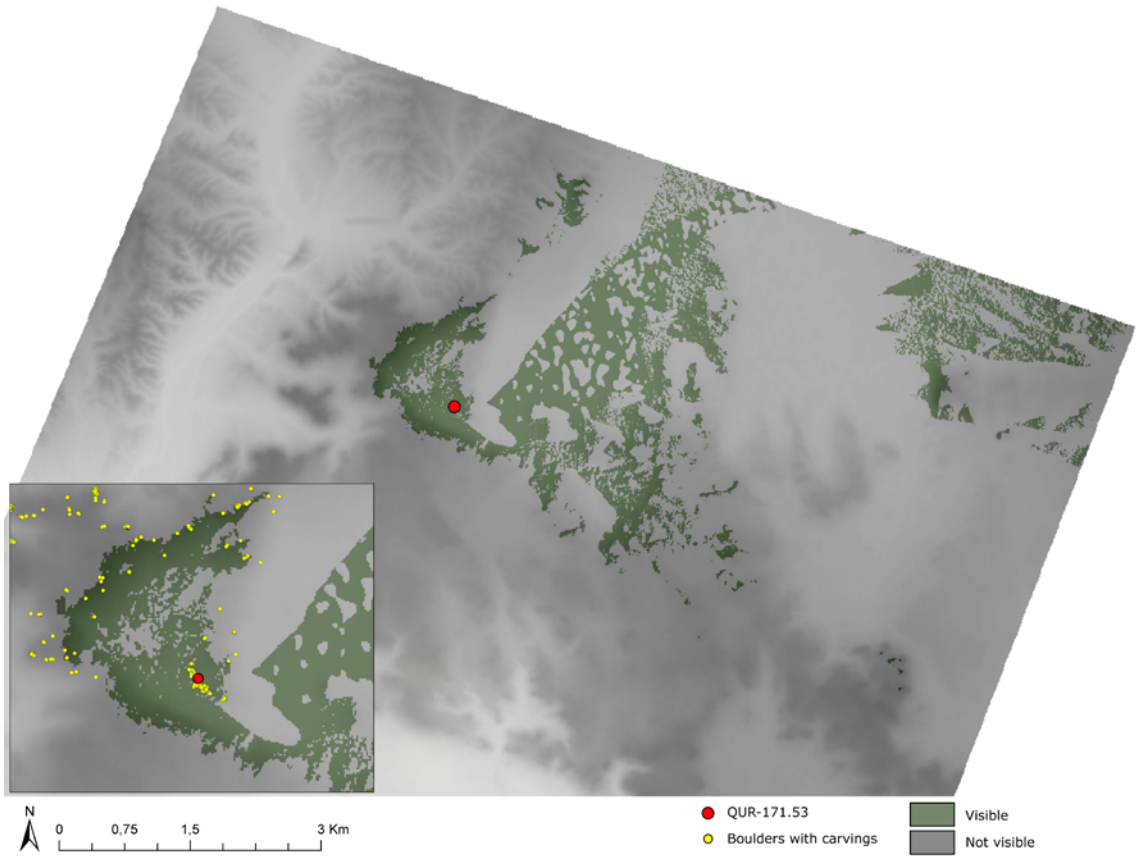


Figure 6.48. Viewshed analysis for QUR-171. Green areas represent what is visible from the location of QUR-171.53. Base map: WorldDEM. Insert: close-up of the viewshed from QUR-171 and the location of other boulders with carvings.

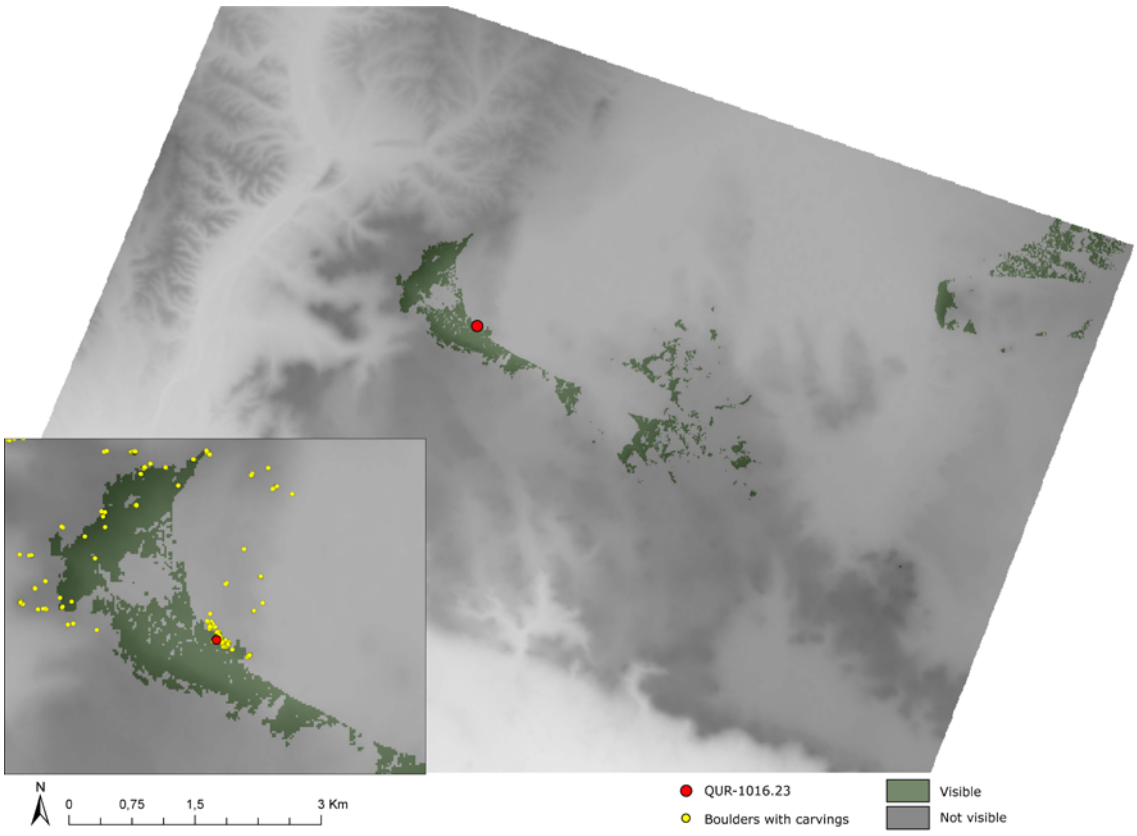


Figure 6.49. Viewshed analysis for QUR-1016. Green areas represent what is visible from the location of QUR-1016.23. Base map: WorldDEM. Insert: close-up of the viewshed from QUR-1016 and the location of other boulders with carvings.

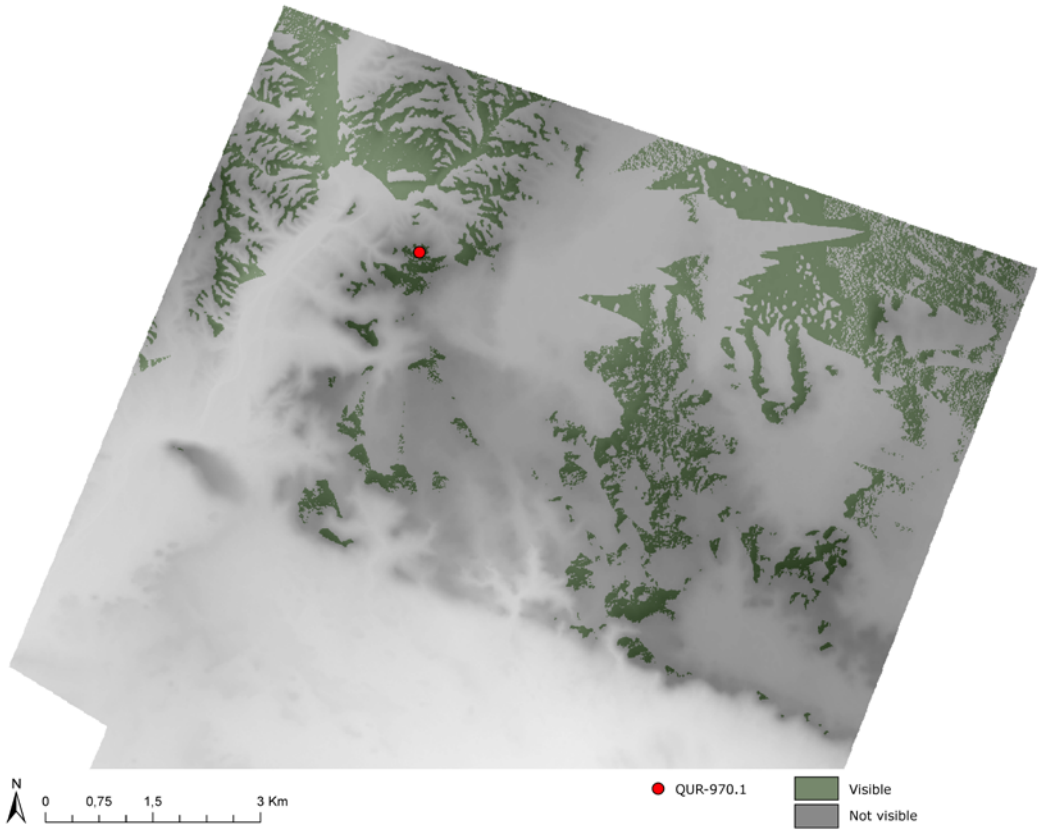


Figure 6.50. Viewshed analysis for QUR-970. Green areas represent what is visible from the location of QUR-970.1. Base map: WorldDEM.

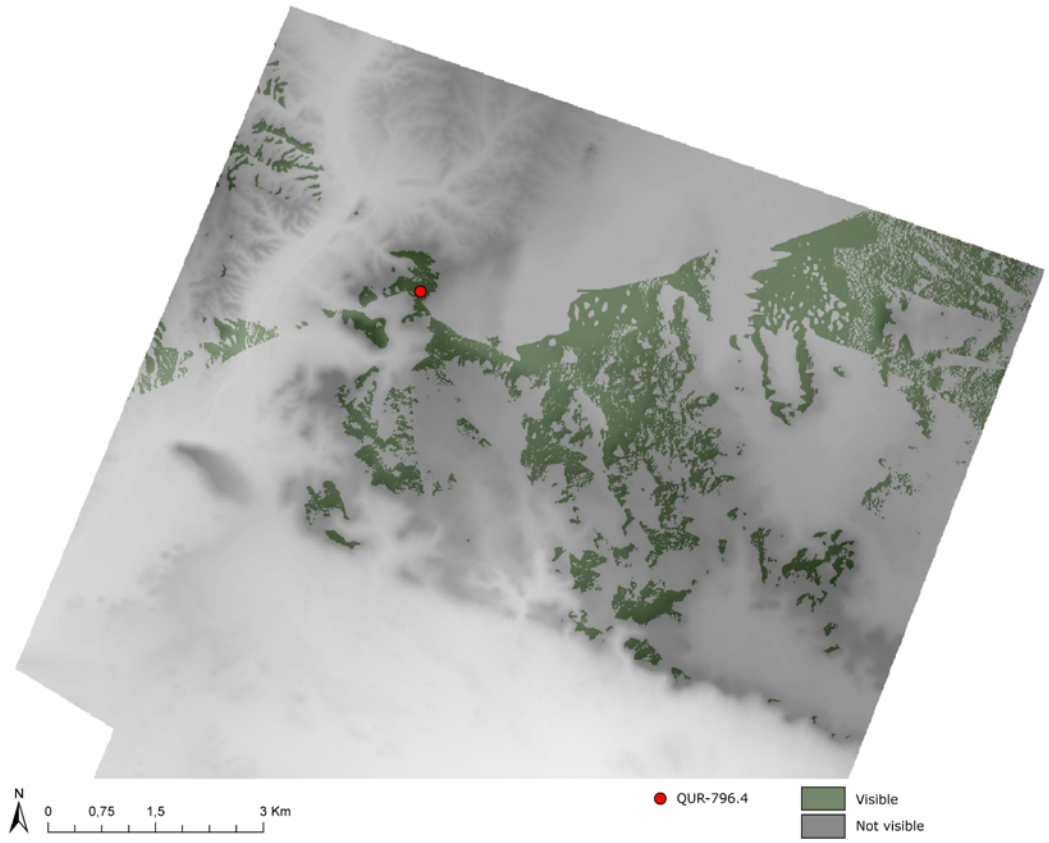


Figure 6.51. Viewshed analysis for QUR-796. Green areas represent what is visible from the location of QUR-796.4. Base map: WorldDEM.

The hidden hunter scenes, desert kites, and possible 'wheel' carvings demonstrate a fascinating interplay between the rock art content and the rock surface. In the case of the two kite engravings, the producers appear to have created micro-structures – 3D representations of structures in miniature using the natural features of the boulders. All facets of the boulder have been utilised to recreate the large hunting installations. As explained in Chapter 4, it is difficult to relate these engravings chronologically to the Safaitic rock art with certainty and it is therefore unclear if their production can be linked to that of the hidden hunter scenes. However, it is clear that the kite depictions belong to a wider regional tradition of portraying these structures, often through the use of the boulder topography. It is to be hoped that new finds of these types of depictions in relation to or superimposed by Safaitic engravings can give new insights into their chronology. It is more difficult to discern if the other two figures are indeed meant to represent wheel structures. They do not mimic the appearance of these structures on the rock surface in the same way as the kite depictions. However, their use of the natural indents in the rocks makes them another interesting example of carvers actively interacting with the rock surface in the making of rock art.

The hidden hunter scenes offer more clues for understanding the landscapes of production and consumption of the Safaitic carvings. The topography of the rocks on which these scenes were carved has been used by the producers to create and enhance the narrative of the scene. The natural features of the boulder, sometimes aided by the use of technique and composition, separate and obscure the hunter from the prey and, in some cases, at first glance also from the viewer. The viewer can thereby imagine a narrative in which the hunter is lying in wait to ambush the prey. In this way, the carver also appears to have recreated the physical hunting landscape, in which the hunter uses the natural elements to his or her advantage, in the micro-landscape of the rock art.

There are variations in how the scene might be viewed whereby different factors play a role. In one scene, both hunter and prey are immediately visible to the audience (Figure 6.6). In another, the archer is only visible if one looks at the boulder from the right angle (Figure 6.8). Similarly, the nature of the boulder used to depict the ibex and oryx hunting scene almost obscures the hunter altogether (Figure 6.7). However, the archer's bow and arrow on the main panel gives away his or her presence. Indeed, perhaps the depiction of the weapon on the main panel is *meant* to draw attention to the fact that a hunter lies around the corner. If one looks at the main panel carefully, one cannot miss the bow even if the hunter is concealed. It is apparent that this extra element is significant to the narrative because five out of the seven scenes featuring a hidden archer depict the bow and arrow curving onto the main panel.

In two other scenes, the technique is mainly used to hide the hunter. In these scenes, the archers are incised while the prey is pounded into the rock. Therefore, when one looks at the rock art from a distance, only the prey is visible. Through the use of different techniques, the narrative also unfolds itself to the viewer. Thus not only the angle of viewing is important, but also the distance at which the audience stands. In viewing the rock art, the audience can visualise the narrative from the perspective of the hunt and the perspective of the hidden hunter, waiting in ambush.

These scenes provide a clear example of the deliberate selection of particular boulders on which to depict a particular type of scene. The micro-landscape of the boulder played an important part in the production of these hunting scenes. They are the minority of the scenes in the Jebel Qurma corpus; the others do not appear to have been made using the topography of specific rocks. The use and creation of micro-landscapes in the rock art were thus limited to particular instances. Instead, technique and composition appear to have played an important role in creating visual emphases in the majority of rock art scenes and figures, as outlined in the previous chapter.

At the same time, the other rock art compositions do appear to have been carved on particular boulders with some intent in mind. The majority of scenes are carved on individual panels despite there being space on the larger boulders, suggesting that carvers preferred to create scenic compositions in their own space. Carving scenes among other compositions would have rendered them less visible, so this may have been a deliberate way to enhance the visual narrative of the scenes. A number of large boulders attracted a high amount of accumulation of engravings. The petroglyphs are rarely carved so as to interact with, relate to, or destroy other figures but instead are carved around other compositions. As there are enough suitable rocks available at all of the sites to carve on, carvers thus appear to have made a conscious choice to produce petroglyphs on the same boulder but not visibly relate them to pre-existing carvings. Likewise, engraving a composition on an empty panel represents a different but explicit intention.

In future research, it would be worthwhile to investigate the amount of effacement or other destruction of carvings on these boulders to detect whether carvers destroyed the work of others before carving their own

composition on the panel. This study has shown so far that the rock art compositions were often left alone, but perhaps a different picture would emerge when such an investigation would be carried out jointly for both types of engravings. Similarly, it would be interesting to study how the inscriptions relate to the rock art figures as there are examples of several carvers claiming the same image.

The micro-landscapes of the boulders appear to be quite complex with several different types of choices being made in where to make a carving. The choice that a carver made probably depended on several factors, such as the type of composition he wished to make, the affordances of the available rocks, the type of pre-existing carvings at a location, and perhaps also the other carvers who had been active at that location.

This chapter subsequently explored the factors influencing rock art production on the macro-landscape scale through a study of the distribution of the carvings in the region and how their locations relate to hillslopes, cost of movement, and the visibility of and from sites. I investigated this on two levels: the distribution of composite carvings per site in the whole region and the distribution of carvings per boulder in the north-western area. The comparison between the general distribution of composite carvings, rock art figures, and rock art compositions showed that there is no difference in the landscape setting of images, texts, or combined carvings.

Looking at the sites where carvings occur, it is apparent that many also feature stone-built structures. For many of these structures, their dating is unclear and therefore so is the relationship with the carvings and their makers. Were they already present, were they constructed by the Safaitic authors, or were they built later? Further research on many of the structures is needed to elucidate this. There is more evidence available for some of the structures. For example, the reference to enclosures in a few texts suggests that these features were used by the authors. The reference to a cairn at the site QUR-215 might indicate a direct relationship with the burial at this site, although this cannot be determined conclusively.

The structures that were already present in the landscape, such as some of the enclosures, wheels, and kites may have attracted the production of carvings as important 'ancient' structures in the landscape. However, not all of these structures correlate with concentrations of rock art and inscriptions. Likewise, not all concentrations of carvings correlate with the locations of structures. Therefore, it is more likely that some of these structures were actively used by the producers of the carvings and thereby also accumulated a spatial correlation with carvings.

The relationship between the carvings and the tower tombs remains complex. There does not appear to be a direct association between the two phenomena because there are tower tombs without large carving concentrations and there are large carving sites without tower tombs. The one therefore did not necessarily attract the other. The incorporation of engraved panels into some of the tombs suggests that the cairns may have been built after the production of the carvings had ended. As will be discussed further in Chapter 7, the content of the inscriptions indicates that the texts were meant to be read and the images seen. Therefore, it seems unlikely that the carvers would place engravings upside down and in the seams of cairns, rendering them poorly visible. Therefore, the cairns may have been built by other people or groups, to whom the engravings had no significance or much later when the carvings had lost their significance. Equally, the use of engraved stones as construction material might have been a form of active destruction of the carvings.

The frequent occurrence of tower tombs and large carving sites in the same places could instead be an affiliation between the carvings and place and the tombs and place. That is to say, the construction of tower tombs may have been focussed on the same types of places in the landscape as the production of carvings, such as prominent hilltops. Huigens (2018: 211) argues that places that were visually prominent in the landscape and that offered extensive views were preferred for the construction of funerary monuments in the Hellenistic and Roman periods. Similar places appear to have attracted the accumulation of Safaitic carvings, which is possibly why they tend to cluster in the same locations. There was not a direct correlation between the tower tombs and the carvings. This hypothesis is supported by the fact that there are locations with tower tombs with few carvings and locations with large carving sites with no tower tomb. This also serve to affirm that the claim by Oxtoby (1968) that Safaitic inscriptions can mainly be found at cairns is incorrect.

The relationship between specific places in the landscape and concentrations of carvings is demonstrated by the spatial analyses of carving sites. Although there are a large number of small sites, which are located spread out throughout the region, the majority of carvings in the survey area are concentrated at a handful of sites and these are located in very distinct locations. They are situated on the periphery of the region, on the edges of the basalt plateaus, and close to the lowlands, such as the plains, wadi valleys, and mudflat. These results contradict the observation made by Macdonald (1992a: 305), who argued, based on data from the Jawa area, that the carvings are scattered across the region and that 'they occur, in greater or lesser numbers, almost anywhere that the rock is suitable for inscribing'. The

Jawa data cannot currently be evaluated, but it is clear that in the Jebel Qurma region, the carvings cluster significantly in certain places and are not found just anywhere where there is a suitable rock surface. New systematic contextual studies from other areas in the *harra* could shed light on whether there are regional differences in where the Safaitic carvings were produced or whether they are concentrated in similar types of locations throughout the basalt desert.

Looking at the relationship between the carvings and the landscape topography, a number of observations can be made about the accessibility and visibility of concentrations of rock art and inscriptions. Sites are usually located on topographic highs and on the slopes of hills. The case study of the north-western area indicates that the boulders with carvings are usually situated on the steep slopes and on the edge of topographic zones between the hilltop and the slope. They are rarely at the bottom of the hillslope or on/near a topographic low. As a result, the carving sites are difficult to access. Whether one climbs up the hill or walks across the plateau to reach the hilltops and edges where the carvings are located, it means moving across the difficult basalt terrain. The cost of movement across this type of surface is high. However, although the carvings correlate with areas with a high cost of movement, their position at the edges of the basalt plateau situates them near possible easier routes through the landscape. The wadis, valleys, and mudflats provide a lower cost of movement and the majority of sites are situated near one or more of these landscape features.

There does not appear to be a strong association between carving concentrations and the visibility *of* their locations, i.e. prominent places in the landscape. Many sites are situated on high hills, which are visible from afar, but a large percentage are located in places that are not visually prominent and do not dominate the skyline. This suggests that the visibility of the location from a distance was not a determining factor in the production process and in the accumulation of carvings at specific places. Instead, visibility *from* sites appears to have been more important. The steep slopes and hilltops where carvings cluster would provide good views of the low-lying areas surrounding the basalt plateaus and hills. For a small selection of sites, viewshed analyses confirm that there is a strong association between these carving concentrations and good visibility. Especially the locations of the large engraving sites that were tested provide extensive views of the areas below the hills, such as the Wadi Rajil valley and the Qa'a al-Teyarat mudflat. Even the smaller sites with seemingly less conspicuous positions, such as QUR-965, have panoramic views of the valley below. Yet none of these sites have good visibility of the basalt plateau on which they are situated, probably due to their position at the edges of the plateau. In contrast, from the two sites with few carvings, one does have a view of the plateau itself. The visibility of the surrounding low areas is much more limited. This suggests that there is a correlation between (large) carving sites and good visibility of specific parts of the landscape.

Only a small number of sites were tested using viewshed analyses. Further research conducting viewshed analyses for more sites, different types of sites, and in other areas of Jebel Qurma could provide further insights into this correlation and ascertain whether specific sites and locations in the landscape provided particularly good visibility. However, this first study serves to complement the detailed qualitative observations made in the field about the position of the carving sites in the landscape and their relation to various topographic features.

The results of this chapter show that the majority of the Safaitic carvings concentrate at locations that are on the periphery of the basalt, near the low-lying areas and potential routes through the region. They cluster on the edges of hilltops, from where it is possible to gain an extensive view of the land below. These places may therefore have served as vantage points in the landscape, providing the nomads a space to be on the lookout for, for example, their herds of grazing camels, wild animals to hunt, or enemies. Macdonald (2010) has argued that the nomads carved the texts and images during the many moments of idleness while being on the lookout. Being on the lookout is also described in various Safaitic texts, as is pasturing and raiding. These subject matters were thus clearly of importance to the carvers. This landscape study of the Jebel Qurma region suggests that the Safaitic carvings are associated with places that could have functioned as vantage points. Were the nomads accessing these places to gain a good view and then producing carvings while sitting on the lookout? Or were there other factors determining and compelling the production of carvings in these places? This chapter has also demonstrated that the carvings are not located at just any good vantage point, they are concentrated in very dense clusters. For most of these locations, the visibility and accessibility of the sites is no different if one moves 50 m to the left or right. Yet the carvings are not spread out across the hilltop or plateau ridge; they are clustered together. So, just like for the micro-landscapes of the rock art, there appears to have been deliberate choices made in where to make the carvings, rather than any suitable rock surface or any suitable, accessible vantage point. In the following, final, chapter I explore which factors may have influenced the production of rock art further. I discuss how we are to understand the Safaitic rock art as a cultural practice and what this tells us about the relationship between the nomads and their landscape.

Chapter 7

Images and interactions

7.1. Introduction

The Safaitic rock art of the North Arabian basalt desert is a unique and understudied material, one of the few surviving traces of the elusive societies that inhabited this region in antiquity. Yet little is known about the actual cultural practice of making rock art, and the accompanying inscriptions, by the desert societies. Why did these peoples carve images throughout the *harra* and what did the engravings mean to them? Many studies have addressed similar issues in the research into the different types of rock art that can be found across the globe. Various theories have been proposed on the role of rock art in nomadic societies, but few have studied it as a cultural practice in societies where herding formed part of the nomadic way of life. Those studies that have looked at herder rock art have primarily interpreted it as a mediator of territorial disputes and boundaries, similar to various theories for nomadic hunter-gatherer rock art. However, these explanations do not suffice to elucidate the many complex visual expressions of rock art, that are intertwined with the society's specific culture, time and place. Nor do they take into account the complexity of herding societies themselves and their very particular interaction with the domestic and wild landscape. The ancient societies of the Black Desert are no exception to this and, so far, what was known was based primarily on the inscriptions that they made. Rock art, as visual expressions of people's lives and worldviews, can provide unique insights into its makers and how they perceived and interacted with the world around them.

For this reason, this book set out to explore the Safaitic pictorial engravings from the Jordanian Black Desert. It aimed to understand the carvings as a cultural practice in the desert societies and to understand how these peoples interacted with the landscape they inhabited. The basis for this study was a corpus of rock art from the Jebel Qurma region in north-eastern Jordan. To investigate these issues, I used an archaeological, material approach, studying the content of the images, how they were produced and consumed, and where in the landscape their production and consumption took place. In this final chapter, I discuss the results of this study and what they reveal about the practice of rock art and about the societies who carved it.

7.2. Desert images

In Chapter 4, I discussed the content of the Jebel Qurma rock art, examining the motifs and scenes with the aim to uncover what is and is not depicted in the images. This study revealed that zoomorphic figures dominate the corpus, making up almost three-quarters of the petroglyphs. In comparison, anthropomorphs are few and appear to play primarily 'supporting' roles in the rock art, as they are most commonly depicted interacting with animals. When humans are shown interacting with each other in, for example, conflict scenes, the animal in the scene still plays the central role. The mysterious women figures are the only exception to this and, although they are rare, they may have played an important role in certain narratives. Similarly, the sets of dots and lines are difficult to interpret but their frequent inclusion in compositions suggests that they had a special purpose in the carvings.

Reviewing the content of the rock art reveals three main themes: pastoralism, wildlife and hunting, and conflict in combat. This raises two questions. First, how are we to interpret these depictions? Are they depictions of everyday life, actual events, or perhaps ritualised narratives? Second, why are the themes of pastoralism, wildlife and hunting, and conflict depicted repeatedly through motifs and scenes? What do they tell us about the societies that made these carvings? In the following sections, I address these questions.

7.2.1.Selective narratives

The Safaitic inscriptions appear to reflect the current and past experiences of the authors. Expressions of grieving, worries about droughts, and acts of being on the lookout and pasturing animals give an impression of the every day and significant events in the life of the desert nomads (Al-Jallad 2015; Macdonald 1992b, 1993). The frequent and uniform expression of daily life suggests that the subject matter of the inscriptions was influenced by the experiences of the authors (Al-Jallad 2015: 7). Yet the individual author is not expressing just anything of interest and relevance to him. Al-Jallad (2015: 3) has shown that the inscriptions are highly formulaic and selective in their form and content. They follow 'stylistic and thematic formulae', suggesting that when individuals learned to write, they learned what to write and how (Al-Jallad 2015: 6). While the content does reflect narratives of the nomads' lives, they need not be real(-time) events. The grammatical structure of the texts means that they 'could equally describe activities in a more distant past, "he had pastured", the future "he will pasture", or even wishes "may he (have the opportunity to) pasture", and not necessarily what the author was doing directly before carving an inscription' (Al-Jallad 2015: 7).

This study of the rock art provides similar evidence. The events, subjects, and narratives in the rock art appear to be rooted in the reality of the desert nomads. Depictions of herding life, wildlife, and conflict seem to reflect the daily and the significant aspects of the desert nomadic world and the images are influenced by the domestic and wild landscape around them. Additionally, how they are depicted shows a great intimacy with these aspects. For example, many zoomorphic figures show knowledge of the animals themselves; dromedaries are depicted with anatomic detail and wild animals are portrayed with their species-specific characteristics. Similarly, the patterns in the depiction of prey and hunting techniques indicate a sense of realism in the carvings. This is supported by the fact that there no indications for mythical or fantastical beings in the rock art, with the exception of a rare few possible hybrid figures.

Yet this is not to say that the carvers were just depicting the world around them and what they experienced. As with the inscriptions, the temporality of the narratives is unclear; the depictions may reflect a past or future event or a prayer or hope for an event. What is more, like the inscriptions, the rock art is highly selective and thematic. The motifs and scenes were by no means random depictions of subjects and narratives of interest to the individual carver. There were culturally determined conventions for what was depicted and how. The dromedary camel is depicted repeatedly, often on its own or being led by a person, as a mother or young, or as the object of a raid. Domestic equids are usually ridden by people carrying weapons and hunting or fighting. Other domestic herd animals that one might expect are absent, such as goats and sheep and, with a few possible exceptions, donkeys. Wildlife is an important theme in the rock art, but not all desert fauna is depicted. Furthermore, wild animals almost always feature in specific, repetitive contexts. For example, ostriches are almost always carved in flocks, while lions are usually depicted on their own or hunting animals. The depiction of hunting also appears to have followed certain rules; oryx are hunted from horseback, bovids are hunted in groups using dogs, wild asses are hunted by the solitary archer, and ostriches are often hunted by packs of carnivorans. Humans feature in the rock art but, with the exception of the women, are always simple in form.

The carvers were thus depicting only a selection of reality, just as they were only writing about some topics. They were depicting these subject matters in specific ways, just as they were writing about those topics using specific formulae. Studying what the nomads portrayed and chose to emphasise can provide clues into what was significant for these carvers. In the following sections, I explore the three themes dominant in the imagery: pastoralism, wildlife, and conflict.

7.2.2. Pastoralism and the dromedary camel

The first subject that stands out is the dromedary camel. This motif makes up almost half of the zoomorphic figures and a third of the entire rock art corpus. Its presence in the imagery is thus more dominant than any other. While it is most commonly depicted on its own, the dromedary also features in scenes that appear to depict aspects of the every day of a pastoral way of life: people holding and walking with camels and female camels nursing their young. Similarly, the many individual camels portrayed with their foreleg bound may represent camel herding. Camels are rarely depicted being ridden. Their dominant presence in the rock art and depiction in pastoral scenes fits with what we know from the content of the Safaitic inscriptions. Many texts from across the *harra* contain narratives referring to camel herding, of which a common phrase is 'he pastured the camels.'[1] The rock art thus supports the impression given by the inscriptions that the camel herding was important to the nomads.

Although little is known about the exact subsistence system of these nomads, the importance of the dromedary camel in the rock art appears to reflect a wider significance of this animal in the Near East from the Iron Age onwards. As outlined in Chapter 4, it had a substantial impact on the development of the region by facilitating the expansion of nomadic groups into marginal environments and the development of long-distance trade across the peninsula (Bulliet 1975; Köhler-Rollefson 1993; Magee 2014; Seland 2015). Textual references and iconography from sedentary centres in the early first millennium BC refer to the use of dromedaries by (semi-) nomadic groups in northern Arabia (Magee 2014, 210). The imagery of camels dominates not only Safaitic rock art but also other corpora in Northern Arabia, such as the Hismaic rock art from southern Jordan (Corbett 2010) and Thamudic rock art from northern Saudi Arabia (Guagnin *et al.* 2016). It is also depicted frequently in other forms of iconography, from Iron Age camel figurines from Saudi Arabia (Magee 2015) to Palmyrene reliefs (Seland 2015) and Nabataean reliefs and figurines (Corbett 2010). These representations of camels reflect its symbolic importance to societies across northern Arabia.

There is also interesting archaeological evidence on the possible symbolic role of the dromedary from the southern part of the peninsula. Camel burials have been excavated here that show evidence for the sacrifice of these animals in funerary rituals. These graves may represent *balîya* burials, a ritual that is described in later textual sources and is regarded as 'the sacrifice of an animal for a deceased individual

[1] E.g. 'By Ṣbḥ son of Ẓnn son of Ṣbḥ and he pastured the camels' (ASWS 71)

to use in the afterlife as it was conceived in the pre-Islamic period in Arabia' (King 2009: 81). The textual sources write that usually a female animal, commonly a dromedary, was chosen for the ritual (King 2009). King (2009: 87) notes that 'the choice of the female camel for a *balîya* to provide the dead with a riding animal in the hereafter corresponds with practice in life. The female is preferred to the male camel for riding because of its more benign temperament.'

There is a myriad of evidence for *balîya*-like camel immolations from UAE, Oman, Yemen, and Bahrain, most of which date from between the fourth century BC and the third century AD (Curci and Maini 2017; King 2009). As King (2009: 91) points out, we cannot assume that the archaeological evidence for these practices in southern and south-eastern Arabia equates with similar practices in the rest of the region. However, there may be some archaeological and epigraphic evidence that indicate similar rituals. A possible *balîya* burial was found in Wâdî Rumm, southern Jordan, where the burnt remains of a camel were found in a pit, accompanied by a Nabataean inscription referring to blw' (Hayajneh 2006). This word probably relates to the Classical Arabic term *balîya* (Hayajneh 2006). There are also Safaitic inscriptions referring to the *bly*, which, like the Nabataean blw', is interpreted as *balîya*. For example, one inscription reads 'By ʾtm son of ʿn son of Ẓʿn and he set up this Baliyya for his brother'.[2]

The use of this term in Safaitic inscriptions suggests that the *balîya* ritual, perhaps involving camels, occurred in North Arabia too, either in practice or symbolically. It has been suggested as early as 1932 by Rostovtzeff (1932: 111) that the dromedary camel carvings in the Arabian and Sinai deserts were 'dedications or recommendations to preserve the camel from harm'. Rostovtzeff (1932: 110-111) likens them to the camel figurines that have been found elsewhere in Arabia (for a recent overview of these finds see Magee 2015). More recently, Corbett (2010) has argued that the camel images, and especially the she-camels, depicted in the contemporary Hismaic rock art from southern Jordan were offerings or sacrifices. It is possible that the widespread camel depictions functioned as symbolic sacrificial camels, for example as votive offerings to deities, as suggested by previous scholars, or as a sacrifice for a deceased in the afterlife, like in the *balîya* ritual.

The widespread representation of camels in the rock art of the Jebel Qurma region thus appears to be part of a wider tradition in which this animal played an important symbolic role in the nomadic societies of ancient Arabia. Furthermore, the rock art provides evidence that, for the carvers of the Safaitic engravings, this role was not only one of economic value but of a much more deeply entrenched socio-ideological significance (Brusgaard forthcoming). Parkes (1987) has argued that imagery in pastoral societies focuses on the main animal being herded, which plays a central part in the symbolic and ritual sphere of society. The economic importance of the herd animal is only part of a wider cultural significance. This can be seen in, for example, the cattle herding societies of eastern Africa (Herskovits 1926; Insoll *et al.* 2015; Lincoln 1981), the cattle herders of the Sahara (Lenssen-Erz 2012), and goat herding societies in Central Asia (Parkes 1987). Lenssen-Erz (2012: 105) has also shown that the cattle depictions in Saharan rock art evolve from being represented in scenes of everyday life to being depicted on their own or in herds and in elaborate aesthetic styles. He argues that this signals a shift towards their value as individual animals with identities and symbols of wealth and status (Lenssen-Erz 2012: 105).

The camels in the Jebel Qurma rock art show a similar characteristic to the later cattle figures from the Sahara. A small percentage is depicted in scenes representing pastoral activities, aspects of everyday life. However, the majority of the camels are depicted individually. This suggests that the motif was significant in and of itself, rather than through its interaction with other motifs or narratives. The inscriptions refer to them on an individual basis, referring to 'the young she-camel', 'the male camel', etc. This suggests that these animals were regarded as individuals with a special status. Furthermore, the camels have often been produced in detail and according to an elaborate production process, and more so than other zoomorphic motifs. On the one hand, they are depicted with realistic details and, on the other, they have unnaturalistic features such as the straight neck and the exaggerated hump. Perhaps the depictions represent 'the ideal camel' with all the desirable qualities. This may also reflect their status as symbolic wealth, a common feature in herding societies that have large livestock (Russell 2012). This is supported by their role as the objects of raids and, in this, the female camel may have especially had an important status.

This may also explain why goats, sheep, and donkeys are rarely portrayed in Safaitic rock art even though the inscription indicates that at least some of the carvers in the *harra* had these animals. These animals may have contributed economically to the subsistence of the desert nomads, but they likely did not acquire an equally elevated socio-ideological position. The depiction of herding life, through the camel and pastoral scenes, reflects only the herding way of life focussed on the most socially and economical important animal, the dromedary camel.

[2] WH 165

7.2.3. Wildlife and hunting

The representation of wildlife and people's interaction with it manifests itself in the individual depictions of wild animals and the hunting scenes. Ibex, oryx, wild asses, ostriches, gazelles, and lions feature in the rock art, depicted on their own, some in herds and flocks, and being hunted by humans and carnivores. Faunal remains from various periods, the later pre-Islamic poetry, and 19th and 20th-century travel accounts, combined with the rock depictions, provide evidence for the presence of these animals in antiquity. The depiction of wildlife is discriminate; many desert animals are left out of the depictions, such as snakes, birds of prey, and small felids and canids. The focus is also wholly on the fauna landscape. Plants are not depicted, which is not surprising as this is rare in rock art in general (cf. Veth *et al.* 2017).

There are no faunal records of the wildlife from the eastern *badia* from the Hellenistic and Roman periods so it is currently not possible to reconstruct from the archaeology how these animals figured in the economic world of the Safaitic authors. The pictorial and textual engravings cannot aid in reconstructing the subsistence economy of the desert nomads and to what extent wild animals played a role in it. However, they can provide insights into the symbolic significance of wild animals. The selective portrayal of specific wild animals and *how* they are portrayed can provide valuable insights into the role that the wildlife and specific species played in the cosmology of the nomadic societies.

Wild asses play a small, but pivotal role in hunting scenes. When depicted, they are almost always the visual focus of the hunting scene. They tend to be made using elaborate techniques, resulting in a stylistically elegant appearance. They are not just the object of the hunt, but the centre of the narrative. Wild asses were evidently important and highly regarded by the carvers. In the later pre-Islamic poetry, they are often likened to the author's mount, the she-camel, and described as fast and strong animals (J. Stetkevych 2002; S. Stetkevych 1993). It is possible that they were regarded in similar symbolic terms in the earlier desert societies. It is noteworthy that the majority of the wild asses are male, like the domestic equids being ridden. It thus appears that the stallion in particular was of importance. While I have only discussed the equids that could for certain be identified as wild (those being hunted), it is highly likely that many of the unidentifiable equids also represent wild asses. This would mean it is a frequently reoccurring motif, one that is important as both the object of the hunt and in its own right.

The oryx is often depicted on its own, in a composition of several animals, and being hunted. It is generally depicted in more detail than the other bovids. The exception is when an oryx is depicted being hunted by a rider on horseback; in these cases they are simple in design and the visual focus of the scene is on the equid instead. When the sex of the oryx is depicted or mentioned, it is a male. Oryx 'bulls' may therefore have had a special significance. Similarly, the many ibex depictions may represent males as they are depicted with the characteristic large, scimitar-shaped horns. Ibex are more often featured as the object of the hunt or with one or more other ibex. The ibex and oryx are also depicted together in various compositions. Considering this, it is noteworthy that in Safaitic the same word is used to denote ibex and oryx. It is possible that these animals had a similar or intertwined symbolic significance. Together with the wild ass, these two large bovids feature prominently in the rock art (hunting) landscape of the carvers. All three would have been difficult animals to hunt, especially the males. Oryx can kill with their horns, ibex are strong and nimble, and wild asses are fast. Killing these animals may therefore have carried prestige and, at the same time, these animals may have been admired by the nomads.

In contrast to the ibex, oryx, and wild ass, ostriches are almost always simple in design and usually depicted in flocks rather than individually. They are often depicted being hunted by canids and lions. Therefore, their presence in the rock art may be a representation of the wild landscape rather than a focus on the animal itself. Conversely, ostriches are one of the few wild animals mentioned in narrative inscriptions. They are therefore somewhat of an enigma, being depicted in large numbers but lacking detail, and mentioned in the inscriptions but never as individuals.

Lions are one of the few other wild animals mentioned frequently in narrative texts. They are also the only clearly identifiable wild carnivoran. The texts express the danger lions posed to humans and domestic animals alike. The inscriptions from Jebel Qurma mention attacking lions and being attacked by lions; in the latter case, the author's poor dog was the victim. In inscriptions from other areas in the *harra* authors also state being on the lookout for lions,[3] killing lions,[4] and being attacked by lions.[5] One particularly creative inscriber wishes a lion upon the person who effaces his inscription.[6] The threat that lions presented is mirrored in the rock art. They are depicted in large dimensions and in a threatening posture, portrayed as if roaring and ready to pounce. The scenes show them attacking or being hunted by humans and hunting other animals. That the people inhabiting the desert would have

[3] E.g. SIJ 14, ASWS 183
[4] E.g. HaNSB 333, RSIS 198
[5] E.g. LP 161
[6] LP 461

perceived these animals as a threat is unsurprising. In areas where lions and pastoralists still coexist, such as in East Africa, human-lion relationships are fraught and often marked by humans killing lions and lions killing livestock (Hazzah *et al.* 2009; Mogensen *et al.* 2005; Prins 1992). Pastoralists hunt and kill lions as retaliation for them preying on their livestock, but often also out of a perceived rather than an actual threat that these animals pose (Hazzah *et al.* 2009; Prins 1992). Tensions are increased when humans encroach more and more on lions' territories, for example in times of drought, which often leads to lions killing more livestock (Mogensen *et al.* 2005). Historically, many pastoral tribes also actively hunt big game such as lions for a multitude of social and ritual reasons (Prins 1992).

The relationship between humans and lions in the Black Desert in antiquity was likely characterised by similar conflicts. Owning livestock, whether camels, goats, or sheep, would have made the nomads vulnerable to attack. The importance of these animals for their livelihood would have necessitated their protection (cf. Ingold 1980: 27). The fear of attack on the nomads' animals probably extended to their dogs as well, as evidenced by the inscription from Jebel Qurma. It is also possible that the killing of lions was not just done out of necessity or fear, but undertaken as part of ritual or sport hunting. There is evidence for the hunting of lions for sport by elites and tribal leaders in mid-first millennium BC Sabaic inscriptions from Yemen (Maraqten 2015: 219). It is unclear if this can be translated to the societies of the Black Desert, but it is possible that the killing of lions was associated with prestige or skill. The depiction of lions on their own as well as in hunting scenes, like with other animals, suggests that they were significant in the worldview of the nomads.

In general, the hunting scenes appear to reflect the importance and status of the wild animals. The prey is almost always the visual focus of the scenes, in terms of composition, production technique, and detail. The only exception is when the hunt takes place from horseback; in these cases, the horse or hybrid is visually emphasised. This suggests that the equids had a special role, perhaps a special status. In contrast, dogs are often depicted as helpers in the hunt but are simple and small in design. There are a few inscriptions mentioning dogs in narratives that suggest that the author valued their dog emotionally. For example, 'By ʾmyt son of ʾkl of the lineage of Ḥly and he grieved for his dog that had strayed. So O Lt grant a returning [of the dog]'.[7] As hunting accomplices, dogs would have been important animals, helping to minimise risk and maximise hunting success (Mitchell 2008; Perri 2016). In many cultures where dogs are used for hunting, they are extended symbolic importance and a special social status (Mitchell 2008; Perri 2016). It is noteworthy that this does not seem to be represented in Safaitic rock art. However, their frequent presence in hunting scenes does indicate that they played an important role in hunting strategies. This may have been equated with the same role as the human hunters. They are also depicted in small dimensions without details and made using a simple technique. This may in part be a representation of the hunting landscape, depicting the hunter and his dog as hidden and stealthy. However, it is also clear that they are not the focus. Although they play a role in the narratives, the human and canine hunters do not appear to be associated with specific symbolism or status in the imagery.

The frequency of hunting representations in the rock art reveals the importance of these interactions to the carvers. It is therefore noteworthy that references to hunting are rare in the Safaitic inscriptions. There are a few texts in which the author states being on the lookout for a particular animal or lying in wait for an animal, like the ostrich scene from QUR-839 (Figure 4.62). However, these phrases are used in a variety of contexts, so it is unclear what the authors mean exactly with being on the lookout or lying in wait, whether this was in the context of hunting. Explicit references to hunting do exist [8] but are rare. In this, the pictorial and textual engravings thus diverge from each other in content.

The hunting scenes illustrate two forms of hunting, each perhaps representing a different aspect. The scenes depicting animals hunting other animals portray an aspect of the natural environment: large carnivores hunting prey. Humans do not feature in these scenes and they appear to instead reflect a perception of the wild landscape around them. The majority of hunting scenes depict humans hunting animals. Although we cannot discern if these were portrayals of real events, the realism and standardisation of the depictions suggest that hunting was culturally significant in the world of the desert nomads. It is possible that it was ritualised or a form of sport, a development often evident in pastoral and agricultural societies (Russell 2012: 163). The representation of hunting may also have been highly symbolic. As will be discussed below in § 7.6, the global rock art record has various examples of areas where the animals depicted widely in the rock art do not match those found in large numbers in the zooarchaeological record (Keyser and Whitley 2006; Russell 2012). The desert nomads may have been depicting that which was symbolically important rather than economically important, both in terms of hunting and in terms of the specific wild animals represented. In many societies,

[7] HCH 131

[8] E.g. 'By S[1]ʿd son of Ġnm of the lineage of Qmr and he hunted until exhaustion, so may he eat and be protected' (C 4348).

certain animals are loaded with symbolic associations, which are 'socially created and maintained' (Lewis-Williams 2004: 44). Thus the frequent depiction of the oryx hunt and the ibex hunt may represent the prestige of hunting these animals rather than the hunt itself.

The symbolic importance of hunting appears to have been part of a wider ideology in the region. Hunting is depicted frequently in Hismaic and Thamudic rock art as well (Corbett 2010; Guagnin *et al.* 2016; G.M.H. King 1990). Further textual and iconographic evidence from across Arabia reveals the socio-ideological importance of hunting in the societies of antiquity in this region (Maraqten 2015). Not only hunting but also the animals themselves were clearly of symbolic importance to the carvers of the Safaitic compositions. This is evident from, first, the scenes that almost always focus on the hunted animal. Second, the wild animals are also depicted individually and referred to in the inscriptions ('is the oryx/ibex', 'is the lion', 'are the ostriches', etc.). Furthermore, not all desert fauna are depicted. The emphasis is on specific, recurring wild animals. The rock art thus shows how symbolically important these animals and the wild desert landscape was for the carvers.

7.2.4. Conflict and raiding

Conflict is represented in the individual figures by people on horseback wielding weapons and, more frequently, in the scenes. The scenes portray people fighting each other and people on raids. The dromedary camel is often represented as the object of the raids. Like in the hunting scenes, the horse or mule/hinny is frequently depicted as the mount in conflict scenes. Visually, the camels and equids that feature in the conflict scenes are always the objects of focus. Therefore, although the combat is being carried out by people, the visual emphasis in these scenes is on the animals. Conflict is mentioned in the Safaitic inscriptions in a variety of ways. There are references to fighting, being on the lookout for enemies, and raiding. For example, 'By Bnll son of ʾs[1]lm and he was on a raid and so O Lt [grant] security'[9] and 'By ʾnm son of ʿhd and he was on the look out for the raiding party.'[10] Conflict between particular groups and tribes is also apparent from the inscriptions. Most notably, when the tribe *Ḥwlt* is mentioned in the texts, it is always in hostile terms (Macdonald 1993; Norris and Al-Manaser 2018). These inscriptions indicate that conflict and raiding were part of the desert nomads' lives.

Raiding is a common feature in herding societies. The ethnographic record shows that, in societies that own and rely on herding, livestock often constitute wealth (Russell 2012). Animal wealth is an integral part of life, determining social status and prestige, social relations- such as marriage - and ritual exchanges (Herskovits 1926; Lincoln 1981; Russell 2012). For this reason, livestock raiding often goes hand in hand with animal wealth as a quick way to accumulate large herds and thus wealth (Russell 2012). Raiding is associated with prestige, status, and the veneration of martiality and warriors (Lincoln 1981; Russell 2012). It can take on different forms. In the extensively studied 'cattle complex' societies of East Africa, tribes acquire wealth directly through raiding by accumulating livestock as well as the prestige associated with successful raiding (Herskovits 1926; Lincoln 1981). In comparison, among the Blackfeet people of the North American Plains, horse raiding was a communal affair in which booty was shared among raiders (Ingold 1980: 163). It was therefore a source of prestige and status, but wealth could only be accumulated through subsequent successful breeding of horses (Ingold 1980: 163).

Similar complex relations have been observed in the raiding activities among the camel-herding Rwala Bedouin of North Arabia. Wealth was measured not by how many camels one owns, but by how many one gives away and how (Lancaster 1981). Camels were the means with which to pay bride gifts, compensations, gifts, inheritances, etc. and were thus constantly distributed and circulated (Sweet 1965). To build up a reputation and maintain it by giving away camels in these social transactions, a person needed to acquire and continue to acquire camels, and raiding provided the means to do so (Lancaster 1981). It was considered almost a sport, governed by strict rules; 'raiding was more than just an economic activity ensuring the circulation of surplus camels to be exchanged for reputation; it was a code of conduct' (Lancaster 1981: 141). The most prized objects of raids were milking camels and fine riding camels, of which females were preferable (Sweet 1965). Successful raiding was also a source of prestige and influence (Sweet 1965: 1146). This was also acquired through the capturing of horses during a raid, but they were not the objective of raiding (Lancaster 1981; Sweet 1965). Musil (1928: 371) noted that horses were always used for raids and that they 'are of no economic value but serve merely as weapons for the getting of booty and influence.' For this reason, they were called *al-murnijat* in Arabic, the enriching, and the more horses a tribe has, the more it is feared by its neighbours (Musil 1928: 371).

The ethnographic parallels cannot be applied directly to the ancient nomadic societies of the Black Desert, but it is apparent that there are certain general mechanisms involved in raiding in societies that own large livestock. The Safaitic inscriptions attest to the occurrence and importance of raiding and conflict among these societies. This is mirrored in the rock art

[9] HaNSB 350
[10] HaNSB 48

where symbols of conflict are depicted, such as horse riders with weapons, and scenes illustrating fighting and raiding. The mount of, for lack of a better word, 'warriors' is almost always an equid, although there are two raiding scenes where camels are being ridden. The visual emphasis on equids in hunting scenes, in conflict scenes, and individually with a rider suggests that they had a special status. They were probably not a means of subsistence, but they might have been valuable animals as the 'vehicle' for raids and the means to acquiring booty and prestige. The relative frequent use of patterns to enhance the aesthetics of the equid and its rider reflects the importance of this animal and its role (cf. Lenssen-Erz 2012).

Camels, on the other hand, appear to have been the object of the raids. It is noteworthy that, of the ten scenes that depict camel raiding, eight scenes feature a female dromedary camel as the centre figure of the raid. The depiction of camels being raided considered together with their frequent depiction in the rock art in general and the elaborate way in which they were carved relative to other figures supports a scenario in which camels functioned as animal wealth in the desert societies. Russell (2012: 333) has proposed that, when animals represent wealth in a society, this can be signalled by artistic representations of them and depictions of age and sex can indicate which animals were considered valuable. The idealised depiction of the camels in the rock art, including the exaggerated hump, suggests that camels had an important symbolic status. Female camels appear to have been particularly significant, based on their frequent depiction and important role in raiding scenes. Of the females, the young she-camel might have been especially important. This is unsurprising if these societies relied on herding and if the camels functioned as wealth. Female herd animals are especially valuable because they bear young. Owning a few bull camels and many females leads to a quicker accumulation of animals and thus wealth. Additionally, female camels tend to make better riding animals because of their temperament. This might have made them extra desirable and allowed them a superior status. If camels functioned as wealth in these societies, it does not imply just an economic importance. Contrarily, it suggests a close relationship between camels and people in which camels could function as wealth in different social and ritual relations because of their socio-ideological position in society (cf. Brusgaard 2016).

The Jebel Qurma corpus shows no clear depictions of women being raided, but there are rock art scenes from other areas in the *harra* that do appear to depict this (Macdonald 2012). The depictions of 'slave girls' may represent women captured through raiding. However, the infrequent depiction of women in the Jebel Qurma rock art makes it difficult to deduce their role. Compared to, for example, the camels, it appears to have been minor.

The depiction of conflict and raiding does not just speak to the importance of the camel, but also to the importance of these activities. It is remarkable though that the raiders and fighters themselves are rarely depicted elaborately or emphasised. The ethnographic record of raiding indicates that the glorification of the warrior is a common characteristic of societies that practice raiding. Yet, the Jebel Qurma rock art consistently emphasises the animals in the conflicts: the equid and the camel. There are a few exceptions with detailed riders. This may be distinctive for the region or a particular style of Safaitic rock art. There are examples from other areas in the *harra* where riders are depicted large and in detail. This therefore needs further research with more rock art data from other Safaitic corpora. However, for now, it presents an interesting enigma that, again, points to the particularly important symbolic role of animals in the Jebel Qurma rock art.

7.3. Traces of production and consumption

In Chapter 5 I examined *how* the figures and scenes discussed above were made, studying the production techniques, *chaîne opératoire*, and style. This chapter also explored what happened to the rock art after it was made, looking at traces of effacement, modification, superimposition, and accumulation. Here I discuss these traces of production and consumption in the petroglyphs and what they tell us about the rock art as a cultural practice.

7.3.1. Producing petroglyphs

I argued above that the content of the Jebel Qurma rock art is selective and that there are specific patterns in the compositions and style of these images. This is also reflected in the techniques used to produce the petroglyphs and the process by which some were made. The figures were most commonly carved using the pounding technique. Incised and pecked figures also occur, but the latter is quite rare. Figures have also often been carved using a combination of techniques, whereby one technique is used to carve the figure and another is used to add details. Conversely, sometimes one technique is used to make an outline or sketch and another is used to fill the figure in. Through reconstructing this *chaîne opératoire*, it is revealed that some of the figures were made following multiple, sometimes detailed steps. Both methods of carving would have allowed for more precision in making the images and they indicate an element of planning in many of the images. This is also visible in the

compositions when the figure is associated with an inscription or depicted in a scene.

The relatively consistent use of technique, composition, and process and the resulting style indicates that there were conventions in not just what was carved, but also *how* it was carved. It is possible that this distinct process was essential to the conception of meaning through the rock art. Morphy (2010: 266) proposes that 'art is a form of action'. It is not just a static visual representation, but a way of acting and 'production is integral to meaning creating processes' (Morphy 2010: 266). Seeing rock art from this perspective proposes seeing the production process as a meaningful act and not just the means to the end result, the image. Following the 'correct' steps and using the right carving techniques may have been an essential component of creating meaning through producing. Al-Jallad (2015) has argued that the carvers learned rules about what subjects to write about and the correct formulae to do so. Likewise, I argue that they learned what subject matters to depict and *how* to depict them. This entailed the necessary technique and process for carving, but probably also the social rules and conventions, and perhaps taboos, surrounding the production process. This could explain the relative standardisation of the production techniques traceable in the Jebel Qurma petroglyphs and, especially, the multi-staged process used to make some of them. This knowledge must have been transferred between carvers. Perhaps the instances of multiples authors signing one image are examples of people carving together and learning from one another. Conversely, these may be examples of people claiming each other's creations. Either way, the standardisation of the content and the carving process suggests social conventions that would have been known and repeated.

The question is then why the production process and the content were standardised and which meaning was created through it. On the one hand, it may imply a ritualisation of the carving process. The making of an engraving may have been a form of ritual. It is important to consider that rock carvings might not have been directed exclusively to a human audience (Bradley 2009: 197). The images and inscriptions may have also been intended partly for a divine audience. Some of the inscriptions contain prayers to deities, for example, asking for protection, praying for rain, or wishing for an abundance of pasture (Al-Jallad 2015). This suggests a ritual component to some of, or parts of, the carvings. Earlier I outlined the possibility that the camel carvings were intended as symbolic sacrifices to deities. If so, the use of the correct techniques, process, and execution might have been necessary for the successful communication with the deities (cf. Lødøen 2010: 38). Many of the camel carvings show a series of production steps and considerable care in the execution, including planning and preparation through sketching and outlining. The practice of planning, sketching the outline, carving the camel, and finally adding small details like the hairs might have been important elements in a long symbolic act that ended with the image of the camel. Carrying out the ritual itself - carving the image - would have been a significant part of giving meaning to the symbolic offering.

Conversely, conveying the meaning appropriately would not only have been important for a divine audience but a human audience as well. The inclusion of curses and blessings for other people in the inscriptions shows that the texts were intended to be read by other people (Al-Jallad 2015: 10). For this reason, Al-Jallad (2015: 10) has argued that the formulae used to write the texts 'may have had an additional functional value – to facilitate reading and comprehension'. Considering that the carvers intended for their inscriptions to be read by others, it follows that they intended for their images to be viewed. Therefore, the images may have followed specific rules about not only content but also style and appearance to ensure that others could understand what was being expressed. The use of particular techniques and, especially, the careful planning behind some of the images would have been necessary to achieve the correct style, proportions, and appearance in a composition. For example, the depiction of a camel in the centre of a raiding scene using bold techniques (such as pounding or pecking and filled in) with added details may have been done to emphasise the object of the raid. The use of less noticeable techniques (such as an incised outline) and small dimensions to carve the humans around it may have helped to create the narrative of the scene without drawing attention away from the most important motif, the camel. Similarly, carving the wild ass in a hunting scene using large dimensions and elaborate, well-executed techniques in the centre of the composition emphasised the importance of the prey and this animal. Carving the archer hunting it in small dimensions, to the side, and using a less elaborate technique placed emphasis on the wild ass, while simultaneously 'hiding' the archer from view and thus creating a narrative of a hunting scene.

Thus the structural depiction of specific motifs and scenes in specific ways would have been important to convey the right narratives and meanings for the viewers. This use of the right techniques and process would have also been the product of complex social beliefs and rules. The technological aspects of the carvings (the techniques, tools, surface rocks used, etc.) can signal group identities as much as the forms, compositions, and motifs of the figures (Domingo Sanz 2009, 54). As such, meaning created through the production process would therefore have been tightly interwoven with the meaning of the motif or scene being carved and its final appearance.

7.3.2. Destruction and accumulation

That people subsequently did read and view other people's carvings is apparent from the texts in which authors state finding an inscription and reacting to it (Al-Jallad 2015; see Chapter 3). We cannot reconstruct if they viewed and consumed the rock art narratives in the way I reconstructed above. However, other traces of interactions are visible in the rock art record. The study of these traces has shown that acts of modification and superimposition are very rare in the Jebel Qurma corpus. The act of effacement occurs on a more frequent base. In general, zoomorphic figures are most commonly effaced and, of these figures, the lion is most often effaced, followed by the bovids. Certain parts of the animals appear to have been specifically targeted. The heads especially are more often effaced than any other part of the animal. It is especially noteworthy that the act of effacement occurs more often among the corpus of inscriptions. Underlining this, there are also numerous examples of compositions where the text has been effaced, but the image has been left alone.

The specific targeting of the inscriptions, certain animals, and certain parts of the animal figures indicates that these effacements were not just random acts of destruction. Instead, it is possible that the 'power' of the carving, whether ritual, social, or other, lay in specific parts of the composition, such as the inscription or the head of the animal. It would therefore not be necessary to efface the entire carving, but only those elements, to negate the effects or influence of the carving or to make it 'invalid'. In the cases where only the inscription has been effaced, it is also possible that doing so was an act to destroy or invalidate the carver's ownership of the image. It is difficult to say who was responsible for the destructive acts. It was done by people who could read the inscriptions, as evidenced by the examples of people adding specific marks to texts to render them nonsensical. The act of effacement was clearly a matter of concern for the Safaitic authors, as attested by the curses against it. This underpins the importance for carvers that their compositions endured and thus the importance of the rock carvings.

The process of accumulation of carvings on boulders and at sites demonstrates a very different type of consumption. Instead of destroying others' compositions, in these cases, people were adding their own carvings to the same surface or location as pre-existing ones. The results show that, overall, the images and compositions were carved on many separate, generally small, boulders. However, the very big boulders that occur at some sites have attracted a large number of carvings over time. It is possible that carvers made an explicit choice to either carve their composition on an empty panel or to add it to an already carved panel. This may have been influenced by the type of composition the carver wished to make, the types of pre-existing carvings at a site, the rocks available, and the people who had already carved at that location. The presence of other carvings may have been an especially important factor. Images have the power to affect and influence and, in particular, they can affect the production of new images (cf. Fahlander 2012: 98). This can be seen more clearly on regional level. While there are many sites with a small number of carvings, the majority of the Jebel Qurma engravings occur at a handful of sites. These places attracted a large amount of accumulation. This suggests that people were more likely to engrave a text, image, or composition where there were already carvings. The presence of images may continuously have stimulated more production, with people being compelled to carve their compositions in the same location as others had done before them. These acts can be considered consumption through production.

7.4. Places of production and consumption

The accumulation of carvings at a small number of sites suggests a correlation between the rock art and inscriptions at particular places in the landscape. For this reason, in Chapter 6, I investigated the places of production and consumption, exploring whether there was a relationship between the carvings and the natural and anthropogenic landscape. I studied this on two scales of landscape: the micro and the macro-landscape.

7.4.1. Carvings in the micro-landscape

The depiction of a number of 'hidden hunter' scenes formed the basis for an exploration of the micro-landscape of the Jebel Qurma rock art. They represent the deliberate interaction between the producer and the boulder topography to give the hunting scene an extra dimension: the hidden hunter. They have in common that the hunter, in most cases an archer, is depicted on another panel than the prey, effectively hiding him or her from view. In some scenes, the panel topography plays a large role in creating this effect and in others, differences in technique have also been used to 'hide' the hunter. The common factor of the hidden hunter implies a cultural convention in how to depict these scenes. This is also indicated by the fact that in the majority of scenes featuring a hidden archer, the archer's bow and arrow curves across the panels, connecting the two panels and narratives. The narrative created by the interplay between image and medium, and sometimes technique, was thus a consistent one: the hunter hiding from view, waiting to ambush the prey. This may also have been a representation of the physical hunting landscape, in which the hunter uses the natural elements to hide from and ambush prey. In doing so 'the artist is

creating a metaphor, whereby humans and animals possibly portray the extent of landscape or, at least, part of that landscape that is most beneficial' (Nash 2002: 187).

It is probable that the carvers intentionally chose these boulders based on their physical qualities for the creation of these hunting scenes. The shape and features of the boulder are used to 'hide' a hunter from the prey, sometimes enhanced by the use of different techniques to create varying degrees of visibility. The carvers have hereby interacted with the rock to create scenes in which the hunting narrative unfolds itself to the viewer and in which the hunter's use of the landscape is depicted. It could also be suggested that the carvers perceived these images as already existing in the rock, ready to be brought forward through the act of engraving, as has been suggested for, for example, South African San rock art (Lewis-Williams and Dowson 1990; Ouzman 1998). Either way, it is clear that the rock surface is not merely a passive backdrop for these images, it enhances the image and is *part of* the image (cf. Boivin 2008; Nash 2017).

This was probably a deliberate choice with the audience in mind. The producers of the carvings were conscious of the fact that other people would interact with their compositions, either negatively or positively. The nomads intended for their carvings to be viewed and read in a certain way and they conveyed meaning through the use of particular motifs, techniques, and compositions. The hidden hunter scenes are another interesting example of this, whereby the nature of the rock is used as an added enhancement for the narrative. They are rare; the majority of hunting scenes, and scenes in general, instead appear to primarily use technique and composition to enhance and emphasise. However, in all cases, it can be argued that the producers are creating micro-landscapes in the rock art, depicting the role of the hunter, prey, and landscape. Furthermore, the other scenes may have been produced deliberately on their respective boulders as well. As discussed in Chapter 5, most scenes have been depicted on their own, on an empty panel. This was also a conscious choice, perhaps motivated by the desire to create a highly visible narrative.

The interplay between the *rock* and the *art* in the Safaitic petroglyphs is one of several examples from across the world (see Chapter 1). There is thus increasing evidence for the importance of the medium on which rock art was made and that the surface that was carved or painted on was perhaps just as significant as the image, the production techniques, and the macro-landscape. These discoveries also serve to underpin how essential it is to study the micro and macro context of rock art, including documenting the relevant features of the rock surface in the field.

7.4.2. Carvings in the macro-landscape

Zooming out to macro-landscape scale, it is evident that there were also conscious choices being made in where to produce the carvings on a regional level. There is a clear, strong association between the Safaitic carvings and specific locations in the landscape. They tend to cluster on the periphery of the basalt region, placing them nearby the low-lying plains, valleys, wadis, and mudflats. This would have made the carving sites accessible by taking potential routes across the more easy to traverse lowlands. However, the carvings themselves do not concentrate at the foot or on the flanks of the basalt hills; they are located on the top of, often highly elevated, hills. These results contrast with those from a study of the roughly contemporary Thamudic rock art from northern-central Saudi Arabia. These carvings appear to cluster at the base of the hills, directly along routes in the landscape, based on which it has been proposed that the carvings were made by people passing by the hills on their routes, such as nomads and merchants (Jennings *et al.* 2013: 681). While the Safaitic carvings in Jebel Qurma are located near possible routes through the area, reaching them requires a steep climb up the basalt-covered hills or a long walk across the basalt plateau. Therefore, the Safaitic engravings do not appear to have been made as a result of people merely passing by en route or stopping at the campsites that were often located at the bottom of hills (Huigens 2018: 137). In this case, one would also expect the carvings to concentrate on the, more easily accessible, lower slopes of the hills where equally suitable basalt boulders are present.

Instead, people were actively accessing the hilltops and making carvings there. The results of this study show that these hilltops probably did not function as landmarks. Some of the prominent hills where carvings cluster may have done so, such as Jebel Qurma, but the majority of carving sites are not more visible than other places from a distance. The visibility *from* carving sites appears to have been more important than the visibility *of* carving sites. The reason for this may lie in the importance of these locations as vantage points. The Safaitic inscriptions referring to being on the lookout confirm that the nomads sought out and used vantage points. The location of dense clusters of carvings in places situated on the edge of the basalt, near wadis, plains and/or mudflats, and on top of the basalt hills indicates that the carvings may have been associated with places that provided good visibility of the surrounding lowlands. A number of viewshed analyses of a selection of sites in the northwest tentatively confirm this. The locations with a high amount of accumulation of carvings have in common that they have extensive views of the areas below, such as Wadi Rajil and the Qa'a al-Teyarat.

These places would have been important to the nomadic herders as viewpoints used to keep watch for enemies, game animals, and domestic herds. In a study of the roughly contemporary Hismaic inscriptions and rock art from southern Jordan, Corbett (2010) shows that the carvings cluster in specific locations around drainage points of the wadis. Corbett (2010: 259) argues that these were places where the nomads of the Hisma desert spent a lot of time, pasturing their herds or hunting wild animals. In Jebel Qurma, many of the carving sites provide views of places that would have been filled with water at certain times of the year, such as Wadi Rajil, Qa'a al-Teyarat, and the small wadi in the south. These places would likely have been used to water and pasture domestic animals and would have attracted local wildlife. Some of the carving sites may therefore have been used as vantage points to watch over water-rich places. Other large carving sites provide views of the plains and valleys instead, which may have been pasture grounds for domestic and wild animals and routes for people and animals.

It therefore appears that the Safaitic carvings concentrate at places in the landscape that could have functioned as vantage points for a variety of reasons. They could have been lookout points for pasture or watering grounds of herd animals, the grazing grounds and migration routes of wild animals, the campsites and traveling routes of enemies, and watchposts for possible attacks from enemies. The location of some large carving sites next to enclosures suggests these could have been locations actively used as vantage points while camping and pasturing animals or hunting. Some of these locations may have been viewpoints used to watch over extensive areas and distant opportunities or threats, such as the prominent hills of Jebel Qurma and the sites QUR-952, QUR-186, and QUR-956. Others perhaps functioned as more local vantage points to watch over campsites and pasture grounds, such as QUR-171, QUR-965, and QUR-20.

Yet it is noteworthy that the majority of the Jebel Qurma carvings concentrate at specific vantage points and strategic locations, clustering tightly at these locations. This indicates that the nomads were not making their carvings in just any strategic location or place where they spent time. They were producing compositions at very specific, contained places and the carvings accumulated there, possibly over the course of generations. It is possible that carvers were attracted to places where others before them had also carved their texts and images, resulting in an accumulation of carvings at specific sites and sometimes on specific boulders. The processes of production and consumption of carvings were thereby closely intertwined; consumers became producers and added their own names and images to the accumulative history of a place. How the processes of production and consumption were intertwined, with each other, with the micro and macro-landscape, and with the content of the rock art is the topic of the following section, in which I discuss what the results of this study and the issues explored above reveal about the practice of rock art in the nomadic societies of the Black Desert.

7.5. Rock art as cultural practice

The pastime theory proposed by Macdonald (2010) argues that the engravings were idle graffiti, made to pass the time away while, for example, being on the lookout for enemies or watching pasturing herds. The results of this study indicate that the landscape context of production may indeed have been associated with lookout places. However, the notion that carvings were produced out of boredom can no longer be substantiated. Similar theories have been proposed in the past for both rock art and graffiti art. They stem from 19th-century ideas about 'art for art's sake', art as a product of an abundance of leisure time and boredom (Lewis-Williams 2004: 42; Nash 2010: 51). This view also implies that the production of rock art is the result of individual 'inspiration' (cf. Lewis-Williams 2004: 42) rather than socio-cultural ideas, norms, or cosmologies. However, this perspective on rock art, and art in general, cannot be supported by evidence for the majority of global rock art and has since been rejected by scholars for several reasons (for an overview see Lewis-Williams 2004). Most pertinent to the interpretation of the Safaitic engravings is the recognition that the theory of rock art as the product of individual boredom and self-expression does not account for the particular patterns in what is depicted. As Lewis-Williams (2004: 44) argues for Upper Palaeolithic rock art, 'the narrow range of painted and engraved subjects suggests social norms rather than personal predilections. Upper Palaeolithic artists were, essentially though not entirely, bound by rules of custom'.

Similarly, this study on the Safaitic rock art has demonstrated that the content of the images is selective and repetitive, depicting a restricted range of specific motifs and scenes. Additionally, they are depicted in specific compositions using a fairly consistent production process and form. Macdonald (2010: 15) argued that 'since they were carving purely for their own amusement they could say whatever they liked, in whatever order new thoughts occurred to them, and it did not matter if they made mistakes.' However, the carvers were not depicting just anything of interest to them or in any way they wanted. The carvers learned what to depict, in which compositions, and the correct techniques and process to do so. Mistakes were not desirable, evidenced by the element of planning in many of the images. The correct appearance of the rock art was important. This is not to imply that there was no room for individuality. While the content hardly

varies, the motifs and scenes can vary in the details of style, composition, and technique. Therefore, it seems that there were certain socio-cultural conventions to follow, but that certain elements were open to individual expression and desires. The production of an image would have also been dependent on the skill of the carver, also accounting for differences in its form and content.

The epigraphic evidence also shows that the nomads were not just producing the carvings for themselves; they were conscious of and desired an audience. One possibility is that this was a divine one. The theories proposed by Corbett (2010) and Eksell (2002) have suggested that the carvings were intended as rituals communicating with deities. The role of the dromedary camel in ancient Arabia could imply that their depiction had a ritual significance, intended as symbolic sacrifices to the gods. Additionally, there are Safaitic inscriptions that include prayers and address deities. Does this indicate that there was a ritual purpose to the carvings, that the carvings were intended as offerings or ritual practices? Not only the dromedary camel figures show signs of planning and careful execution, but other zoomorphs also do, albeit on a smaller scale, as do many of the scenes. The wild animals depicted frequently in the rock art were clearly also an important part of the worldview of these societies. Were their images symbolic sacrifices, directed at divine audiences? Carving them in rock may have been an especially suitable medium for communicating with the divine. 'The materiality of the rock offers both a suitable resistance (representing the offering) as well as a promise of durability' (Fahlander 2012: 110). The durability of the carving would have been an important factor if the carvings were intended for deities. The subsequent effacement of a carving would have been a powerful destructive gesture. It is possible that the ritual power of the carvings lay especially in certain elements, such as the author's name or the animal's head. Therefore, targeting specific aspects of the carving for defacement would have been enough to break the ritual.

This would explain the need for curses to protect the carving from other people; destruction could break the ritual. Additionally, certain parts of the composition may have been designed to protect the carving from destruction. It has previously been suggested that the set of seven dots or lines could have been an apotropaic symbol, used to protect the carving or the author himself from harm (Clark 1980; Macdonald 2012; Winnett and Harding 1978). Considering that this motif never occurs on its own, but always in association with a composition, it is possible that it was carved to safeguard the rest of the engraving and ensure that it endured. Similarly, some inscriptions contain a prayer aimed directly at a deity, which nearly always follows a narrative (Al-Jallad 2015: 8). For example: 'By Mġyr son of Ms¹k son of ʿmd son of Mlk son of Qḥs² and he pastured the camels so, O [S²ʿhqm], may pasturing bring abundance'.[11] Part of the text is a narrative and part is a prayer to the deity 'O [S²ʿhqm]'.

It is thus possible that some elements of the engravings were directed at deities, for example, to ask for protection or to ensure the carving would endure. However, the evidence does not support a scenario in which the carvings themselves were all a form of ritual practice. Instead, it strongly suggests that the carvers intended the compositions for a human audience. Texts with blessings for people who would read their texts aloud and responses to finding inscriptions by people they knew demonstrate the awareness of subsequent human audiences and the interactions that might occur. The rock art scenes have a strong narrative component, suggesting that the carvers were also expressing certain thoughts, experiences, and beliefs with a human audience in mind. The images were meant to be seen and the texts were meant to be read. This would for certain have influenced the production of the carvings; knowing that one's composition is (near) permanent and that for generations others will see and interact with it, either positively or negatively, would have had a substantial influence on the production process and the appearance of the carving. This is visible in the hidden hunter scenes, where an awareness of the audience probably played a role in the conscious interaction with the boulder topography in the scene's production. Similarly, the use of technique and composition to create visual emphases in other scenes and figures would also have been for the benefit of creating a clear narrative for subsequent consumers.

The rock art therefore appears to have been intended, at least in part, to be seen by other people. Who was making the rock art and who was the audience? The content of the carvings and their situation in the landscape provide clues to answer these questions. The results of this study show that, while there are carvings throughout most of the Jebel Qurma region, they are densest at vantage points in the landscape. These places provide extensive views of the low-lying valleys, mudflats, and wadis. As proposed by Macdonald (2010), these were likely places where the nomads spent long periods of time, being 'on the lookout' or 'lying in wait', as suggested by the inscriptions. Good lookout points near major routes, valleys, mudflats, and wadis would have had great strategic significance on various occasions. They would have been necessary for watching their herds of dromedaries pasturing on the hill slopes and accessing water in the wadis. They would have been important for waiting for game animals to migrate through the region or to access the wadis and

[11] KRS 1886

valleys for water and vegetation. Furthermore, they would have been important for keeping an eye out for enemies or planning a raid. These activities and these elements of the domestic and wild environment were clearly important to the nomads, as reflected by their frequent depiction in the rock art.

The content of the rock art and the inscriptions and their location in the landscape also indicates that the producers of the carvings were people living in and exploiting the desert. They had knowledge of suitable routes and vantage points in the landscape and they depicted frequently and accurately a specific selection of domestic and wild desert animals and activities. The producers were thus people with intimate knowledge of the environment and the natural landscape. The locations of the carvings, including their remoteness, suggests that their audiences would have been restricted to similar groups of people, people travelling in and exploiting the desert environment, accessing these places for the same reasons as the producers. The inscriptions tell us that the vast majority of the carvers were men. This may suggest that they were also the ones carrying out the activities associated with these places in the landscape and those depicted in the rock art. However, it is noteworthy that the carvers rarely indicate gender among the anthropomorphs in the depictions. The rare women figures stand out, but otherwise, the people are not often clearly indicated as male. In general, people not feature prominently in the rock art. The emphasis is on animals and the interactions with them. As an interesting juxtaposition, the carvers do include their names clearly in the texts so, in this way, the carver is present in the composition.

It is unclear whether the nomads would have been making the carvings *while* being on the lookout. Is it possible to keep an eye out for enemies or game animals or keep an eye on herds while making a carving? This depends partly on the time, effort, and skill needed to make a carving. However, both activities require a certain amount of concentration. Additionally, it is worthwhile to consider the amount of noise that the carving practice would have made. Hammering on a rock is a loud activity and sound carries far in the desert. To exemplify, during fieldwork it was often possible to hear the other survey team on the next hill over as if they were standing right behind us. It does not seem fruitful to combine such a loud activity with keeping watch. To gain more insight into this, it may prove useful to investigate the rock art soundscape, an increasingly researched topic in rock art studies (e.g. Díaz-Andreu and Mattioli 2016; Mattioli *et al.* 2017). Additionally, research and experiments on the time, tools, effort, and skill needed to produce a carving could help answer the question of whether it was possible to make these carvings while on the lookout.

I argued above that there is little evidence to substantiate the theory that the nomads produced the carvings out of boredom during the long hours spent keeping watch. However, that is not to say that there was no connection between the creation of carvings and the activity of sitting keeping watch and being on the lookout for herd animals, game animals, or enemies. Whether or not the rock art was made *while* the nomads were actually on the lookout, it is evident that there was a strong connection between important lookout points in the landscape and the carvings. There was probably a powerful interplay in between the importance of the location, the practice of carving, and the content of the carvings. The nomads may have been depicting images and narratives that they had experienced, were waiting for, or prayed for when on the lookout. Conversely, as important places in the landscape, the nomads may have desired to mark them with images of what was significant in their everyday life and wider worldview.

The need or desire to mark and draw attention to significant places in the landscape through rock art has been proposed as the motivation behind the production of rock art for various past societies (e.g. Bradley 1997; Frachetti 2008a; Jones 2006). The Safaitic carvings may as well have been marking or drawing attention to important, strategic vantage points in the region. In Chapter 1, I discussed how several scholars have interpreted the rock art of both herders and hunters as the communication of territorial claims and disputes in the landscape (e.g. Bradley 1997; Frachetti 2008a; Ingold 1986). Similarly, herder rock art is often associated with increased territoriality and conflict in these societies (e.g. Brandt and Carder 1987; Holl 2004). The Safaitic inscriptions indicate that there was inner or intra-group conflict. One possibility is therefore that the carvings themselves may have been used to sign or claim strategic vantage points or sign territorial claims to pasture or hunting grounds. This might explain why the carvings cluster at specific vantage points rather than being spread out; they are signing specific locations or vying for the same ones.

However, three factors undermine this explanation for the purpose of the rock art. First, there are no indications in the inscriptions or images that the conflict was specifically in the context of territorial disputes. There is a clearer emphasis on raiding, which, based on the ethnographic record, would have been more about the gaining of wealth and prestige through the acquisition and accumulation of livestock, than the acquisition of land or territories. Second, if this were the incentive behind the carvings, one would expect more competition and iconoclasm in the rock art and inscriptions, with people effacing each other's carvings or superimposing them with their own creations. Effacement does occur but not

to the extent one would expect if these were acts of competition, and superimposition is very rare. Overall, there seems to have been respect for the carvings of others and it was more common for carvers to add their own composition to a panel or site than to destroy someone else's. Lastly, and more overtly, in contrast to, for example, the abstract geometric rock art of Britain (cf. Bradley 1991, 1997), the Safaitic images are highly figurative and therefore appear to also have had a role in communicating to others a complex reflection of the significant every day and the worldview of the carvers.

Instead, they were marking particular viewpoints, hilltops and routes for an entirely different reason. First, these places would have been important to the desert nomads and their way of life, strategically, economically, socially, and ideologically. They would have been intimately connected with the significance of herding, hunting, and fighting and therefore perhaps invited the production of carvings. Second, and more crucially, the importance of these places meant that they would have been used and reused by nomads, probably over generations. Frachetti (2008a: 24) proposes that mobile pastoralists use and invest in 'historically meaningful places that accumulate significance through a palimpsest of interactions'. This palimpsest would have been directly visible to new or recurring visitors through the presence of carvings made by many different people. It was likely precisely this that also attracted the production of more carvings. Adding one's name and/or image to a panel or site created a lasting reminder to oneself and to others that the author had been there. As Nash (2010: 51) has argued for British graffiti-art, 'By inscribing themselves onto the landscape, they acquired a kind of immortality', and the history of carvings in the place was probably an important factor in the choice of where to inscribe.

I argue that this also played an important factor in the practice of making Safaitic carvings. In the inscriptions, we see references to forefathers and genealogies, the emotional responses to finding inscriptions by people they know, and the desire to have their own inscriptions read by others. There was thus a sense that one's relatives, ancestors, tribal members, and unknowns may have visited the same site in the past and that, thereafter, one's relatives, descendants, tribal members, and others would visit it in the future. When producing carvings, the nomads did so with an awareness of the past and the future of that place. Knowing this also necessitated the creation of narratives that could be seen, read, and understood by others. It was evidently important for them that their carvings endure and continue to attest to their presence at a site and their addition to the history of the site.

Therefore, it was also the history of these locations that perpetuated the production of carvings, continuously creating new visual histories while reinforcing old ones. Through the creation and accumulation of narratives, these places probably took on special socio-ideological meanings for the desert nomads. Rock art thus adds to the historical narratives of the landscape, by signing, creating, and maintaining significant places (A. Smith 2005a). It is possible that the presence of older structures, such as the wheels, enclosures, and cairns, formed part of these narratives, a sense of the long history of the place. In a similar way, the builders of the tower tombs, which communicated their own history and identification with place and the landscape (cf. Huigens 2018: 214), would have been aware of the carvings and may have constructed their own narratives based on them. Equally, the reuse of carved panels in the tomb construction may signal that these social groups were ignoring or actively deconstructing the history invoked by the carvings, suggesting they no longer identified with the makers of the Safaitic engravings.

Carved in stone, the rock art was a powerful visual expression of one's presence in the landscape. Producing carvings was a way to interact with other people in the landscape. By engraving on the same boulder or at the same site, by reading and viewing others' compositions, even by destroying another's carving, the nomads interacted with others through time and space. This role of the rock art may have been especially important in a desert landscape. These environments are often marked by solitude (cf. A. Smith 2005b) and may therefore have necessitated indirect human interaction to counter this. That the pictorial carvings functioned in mediating social relations between people and between people and place does not exclude a ritual intention. These practices were likely intertwined, which 'does not necessarily imply that the carvings are "a bit of both". Rather, they articulate more of one than the other according to fluctuating local circumstances' (Fahlander 2012: 110). For example, some of the dromedary camel images might have been symbolic sacrifices or visual prayers for the divine. Similarly, some elements of the compositions, such as the symbol of seven or a particular part of the text, might have been directed at deities, while other elements were intended for a human audience. The anthropological record shows us that art is not one way of acting, but many ways (Morphy 2010: 284). It can have different interpretative frameworks that will combine and interact and different systems may be combined in the same complex artwork (Morphy 2010: 284). The social and ritual elements of the carvings may have been combined, intertwined, and divergent at different times or for different people.

It is as of yet unclear whether the rock art and the texts fulfilled the same practice. This study has revealed a number of significant similarities between the two types of engravings, most notably the use of 'formulae' – selective and standardised content and forms – and the distribution in the landscape. However, there are differences in what was expressed through which medium, as evidenced by the strong presence of hunting scenes in the rock art, but little to no reference to this activity in the texts. Additionally, the more frequent targeting of the inscriptions for effacement suggests that the two types of engravings had different connotations. There are more inscriptions than images in the Jebel Qurma region, suggesting that carving texts was a more frequent occurrence. However, in almost all compositions, the rock art was carved first and then the inscription. This may indicate that the image was more important for the total carving than the text.

The nature of expression through the two mediums would have been different on one very clear point: the one is visual, while the other is textual. Through language, the inscriptions provide a direct insight into what the author wishes to express. In contrast, the rock art, as imagery, is open to many more interpretations by the viewer. It is precisely the capacity for people to take this into account in their representations that makes art powerful (Morphy 2010: 283). Creating narratives through the rock art would thus have required a different process and had a different effect than through text. An in-depth comparative study of the pictorial and textual engravings is needed to determine how the two types of engravings connected and diverged in their roles. However, it is clear that, together, the carving of image and text was an effective creation of a permanent symbol in the landscape that - at least so the carver hoped - would endure, continuing to mediate between people, place, and perhaps the divine.

It remains to be shown why the production of the carvings stopped somewhere in the mid-1st millennium AD and how this was connected to new developments in the *harra*, such as the changing funerary practices (cf. Huigens 2018). Was there a cultural or population shift? What change occurred that meant that these pictorial and textual expressions were no longer required or desired? It also remains to be shown what triggered the *start* of the Safaitic tradition in the 1st millennium BC. Rock art can be seen as a social strategy or 'solution' for coping with arising social changes, stress, or conflict (cf. Brandt and Carder 1987; Walderhaug 1998). If mediation with other people and with the divine became necessary, what triggered this development? To answer these questions, interregional studies of the carvings, textual *and* pictorial, is necessary, as is a better understanding of their chronology and the chronology of the region. The holistic study of the engravings and their continued archaeological research of this period and region will no doubt shed light on these matters.

7.6. Interactions in and with the landscape

The study of the content, production, and consumption of the Safaitic rock art and an understanding of the role that it played in the desert societies provides new insights into the way that the nomads operated in and interacted with their landscape. The content of the rock art reveals that the dromedary camel, hunting and wildlife, and conflict and raiding were important aspects of their lives and ideologies. The significance of the dromedary camel and the herding activities associated with it is also apparent from the Safaitic inscriptions. Furthermore, that these nomads depended on the dromedary and held it in high regard fits with the historical context of ancient Arabia in which this animal was firmly established as highly influential for the development of the region, the subsistence economies of its peoples and, moreover, their symbolic world. The widespread depiction of the camel in the rock art also suggests that the camel was of great socio-ideological significance and that its role was more than just subsistence-based. Like important livestock in most herding societies, it probably figured prominently in the ritual and social lives of the nomads (cf. Lincoln 1981; Russell 2012).

Interestingly, there is a dichotomy between what is depicted in the rock art and what is written in the texts in one major topic: hunting narratives. The dominance of this subject matter in the rock art suggests that it was highly significant to the nomads. Together with the abundant wild animal depictions, it shows a reverence for the wild landscape around them. Furthermore, the many, realistic, depictions of humans hunting animals suggest that this was also an important aspect of their lives. The rock art cannot tell us to what extent it was economically important. On the one hand, it may actually be misleading. Studies from other areas in the world where rock art can be compared to the faunal record have often revealed disparities between the two datasets (for an overview see Russell 2012: 14). Most famously, the sympathetic magic or hunting magic theory has been discredited on various accounts, but most convincingly by the failure to find faunal assemblages in the archaeological record that matched what was depicted in the cave art (Keyser and Whitley 2006; Russell 2012).

It is therefore possible that hunting was a symbolic and ritualised event rather than an economic activity. On the other hand, the large number of depictions of wild animals, often depicted in detail with anatomical features and sex, and the detail in the hunting scenes

with specific patterns in prey and hunting techniques suggest that these nomads were intimately familiar with and interacted with the wildlife. This would fit into the increasing amount of evidence from Arabia showing that camel pastoralism did not replace hunting and gathering as a means of subsistence, but was merely incorporated into a broader economic strategy. This is possibly also reflected in the rock art record from other deserts in North Arabia as well, such as the Hismaic rock art of southern Jordan and the Thamudic rock art of northern Saudi Arabia, which also depict dromedaries *and* hunting scenes.

The desert nomads were thus perhaps 'herder-gatherers', subsisting on domestic herd animals, but also exploiting the full scale of wild resources provided by the desert environment. To what extent they were 'herders' and to what extent they were 'gatherers' cannot be deduced from the rock art. However, the pictorial record does illustrate that both aspects were of great ideological importance. Economically, hunting might have been a marginal activity, but ritually or socially it could have been highly significant. This has implications for how we understand the relationship between the nomads and the faunal landscape. Ingold (1980, 1994) has argued that the shift from hunting to herding animals represents a shift from a relationship based on trust to one based on domination. Others have followed this, continuously developing the notion that there is a sharp distinction between the herder-animal relationship and the hunter-animal relationship (e.g. Cribb 1991). Some scholars have argued against Ingold's theory by proposing that the relationship between humans and domestic animals is actually one of trust and intimacy rather than domination (Armstrong Oma 2010; Sykes 2014). However, the dichotomy between the two forms of relationships is still highlighted in most archaeological and anthropological literature. While it is clear that the relationship between humans and their livestock and humans and the wild animals they hunted would have differed on many levels, it seems unwise to continue to label these relationships in terms of the subsistence economy of the society. The increasing evidence for herder-gatherer societies underscores this. The rock art reveals that animals - domestic and wild - overall held an important position in the worldview of the nomads and formed the centre of their activities and experiences, be it herding, hunting, or raiding. Certain animals appear to have had more distinct symbolic roles than others, evidenced by their frequent depiction, the context they are depicted in, and the way in which they were carved. Exploring these animals through their depiction in the rock art can provide unique insights into past human-animal relationships and human-landscape interactions, especially when we move beyond traditional dichotomies.

In considering how the desert nomads operated in the desert landscape, it is, of course, possible that it fluctuated depending on their form of subsistence. I.e. were they reliant on the needs of their herds, such as pasture and water? Or were they as, or more, dependent on the movement and migration patterns of wild animals for hunting? Furthermore, which other social and economic factors affected how the nomads moved through and operated in the landscape? For example, they may have been influenced by the presence of caravan trade routes in the region or hostile neighbouring groups. More research is needed on this topic, for which archaeological and zooarchaeological sources are imperative. However, the role of the rock carvings shows that there might have been overarching principals: the importance of routes and vantage points in the landscape. In many studies that consider the relationship between rock art and the landscape, and especially the significance of strategic locations in the landscape, such as paths and vantage points, rock art is interpreted as a communication of territory or as mediation in territorial disputes. Remarkably, this is proposed separately for both herding societies (Brandt and Carder 1987; Frachetti 2008a; Holl 2004) and hunter-gatherer societies (Ingold 1986; Bradley 1997) and in both, it is expressed as a distinct feature of each type of society. This suggests that rock art is always a mediation of conflict or arises out of the tension of conflict. However, the majority of these studies also recognise the role of rock art in creating and signing meaningful places in the landscape. I propose that it is here that we should seek further. The Safaitic rock art shows little evidence of it being a communicative device of disputes or claims; instead, it suggests the accumulation of interactions between people in meaningful places. At times these interactions were negative, often on an individual level, and at times they were positive. The places that held significance for the nomads were strongly linked to their socio-economic and ideological world, reflecting places where they spent time and experienced or perhaps remembered or hoped for good pastures, a successful hunt, or a bountiful raid. The ideological importance of these places would have been intertwined with their nomadic way of life, whether largely dependent on herding or hunting, or both.

7.7. Conclusions

This book began with the aim to understand the Safaitic rock art as cultural practice and the relationship between the societies that produced it and the desert landscape. It investigated this through the study of a dataset of rock art from the Jebel Qurma region in north-eastern Jordan and through including relevant data from the associated textual material and archaeological remains from the same region.

To gain insights into the practice of this rock art, I took a material approach, investigating its content, the process of its production, and the process of its consumption. By understanding the images and people's interactions with them, from the beginning of production to the end of consumption, it is possible to uncover their role in the desert societies.

The study of the content of the Jebel Qurma rock art revealed that the subject matter is selective and can be divided into roughly three recurrent themes: pastoral images, images of the wild and people's interactions with it, and images of conflict. All three themes are expressed through individual figures and scenes. The portrayal of the pastoral world is predominantly visible in the figures through the prevalent depiction of the dromedary camel. Representations of the wild can be seen in the individual figures of wild fauna and in the large number of hunting scenes, featuring humans hunting animals and animals hunting other animals. Conflict is a slightly less frequently occurring theme but is still visually prominent in the depictions of riders with weapons, combat scenes, and raiding scenes. Anthropomorphs are much less commonly depicted than zoomorphs, but some do stand out, such as the archers, horsemen, and the women figures. Abstract motifs are more common, of which the majority are sets of dots, sets of lines, or a line with a set of dots. These almost always consist of seven dots/lines and are always associated with an inscription, suggesting they are intrinsically linked to the texts.

Overall, the focus of the content is on the world of animals and people's interactions with them. Even in figures and scenes representing conflict, there is generally an emphasis on the role of animals, such as the horse or mule being ridden into combat and the dromedary being raided. The rock art reveals these peoples' perspective of the domestic and wild landscape and their interaction with it. Through this, we gain insight into the worldview of the desert nomads. They appear to be depicting subject matters that probably played a role in the (every day) lives of the desert societies, such as pastoralism, hunting and wildlife, and conflict. The dromedary camel was clearly one of the most important aspects of their world, which fits into what we currently know of the important economic, social, and ritual role of the dromedary in the Arabian nomadic societies from the Iron Age on. The horse and/or hybrid appears to have fulfilled an important role as well, mostly expressed through how it was used for combat and hunting. Additionally, the pastoral ideology clearly not only included the domestic animals that were part of the nomads' everyday lives, but also the wildlife that inhabited the desert region and the importance of hunting.

Whether the figures and scenes depict actual, idealised, or general events and experiences, they reveal what was important to the carvers. Furthermore, the subject matters are depicted in standardised, structured ways and the carvers were not depicting all aspects of life. The rock art, like the inscriptions, was thus a formulaic expression and it is possible that individuals learned how and what to write and what to depict and how. The latter is revealed by the study of the production process. The images were most commonly produced using the pounding technique or a combination of techniques. In a large number of carvings, the production process was a multi-staged event, with the use of outlines or sketches and the addition of details at the end. This is visible in individual figures, scenes, and compositions of text and images. However, an elaborate execution of the image, including multiple steps in the *chaîne opératoire* is more common in some types of figures, such as equids and camels. Specific details, like patterns, are more common in others, such as bovids. These results show that the production process was a planned, structured event, which was also governed by conventions and shared ideas.

The use of particular techniques and especially the use of a multi-staged process was important to ensure the correct appearance of the final image. The preliminary study of the Jebel Qurma rock art style, with emphasis on the dromedary camels, suggests that there was a standardised appearance. A planned production process would have allowed the carver more precision to achieve this. Additionally, the production of the image may have been an important part of creating meaning through the carving. There are indications that some elements of the carvings were directed at a divine audience. If the engravings were intended as votive offerings or prayers to deities, then the production of the carving would have been an important part of the ritual, enhancing the significance of the final composition. Additionally, this would have stimulated even more need for the carving to remain permanent. The use of curses and possibly apotropaic symbols would have been necessary to protect the carvings from harm. The subsequent effacement of an engraving may have been used to break the ritual or prayer.

However, the results of the study of the rock art's production and consumption in combination with the evidence from the inscriptions reveal that the carvings were certainly also intended for a human audience. The inscriptions were meant to be read and the images were meant to be viewed by other people. The awareness that others would view one's creation and interact with it, either positively or negatively, influenced the process of production. With later audiences in mind, the carvers made use of technique, composition, and sometimes the micro-landscape of the rock to create

visual emphases and narratives in the figures and scenes. The act of effacement was therefore also a powerful form of social destruction, making another's work illegible and invisible. Interestingly, however, it is much more common to find traces of what could be called positive consumption, the addition of new creations to the site of pre-existing carvings. People were compelled to carve their compositions in places where others had done so too. As a result, the rock art and inscriptions accumulated in dense clusters at specific places in the landscape.

The study of the topography and setting of these places reveals that they were locations that likely functioned as vantage points in the landscape, providing views of the surrounding low-lying areas, such as the plains, valleys, mudflats, and wadis. Their position on the periphery of the basalt ensured good visibility of these areas but also meant that they were accessible via traversable routes through the region. These were places where the nomads would have spent time being on the lookout for enemies, wild animals to hunt, or their own domestic herds, pasturing below. As important locations in the landscape, generations of nomads would have visited these places. By producing carvings here, authors were leaving a permanent mark for future visitors to see, fully aware of these later audiences. Simultaneously, by adding one's engraving to these sites, the carvers were adding to the history of the place, aware of the many people who had come before and done the same. These places were therefore not just strategic vantage points for the desert nomads, but places of carved history that compelled the accumulation of visual and textual expression. The presence of carvings enhanced the significance of these places in the landscape, just as the position of these places in the landscape enhanced the significance of the carvings.

In conclusion, the rock art of the Jebel Qurma region shows evidence for the interaction between people and between people, place, and material. The content of the images and the processes of the rock art's production and consumption reveal that this material, together with the inscriptions, was an important cultural practice of interacting with significant places in the landscape. The nomads desired to leave behind their permanent mark on these places, adding to the historical significance of the location and becoming part of this history. Furthermore, the carvings played an important role in mediating in social relations between people by creating and compelling interactions between people. They connected people through time and space, be they tribal members, ancestors or descendants, or unknown people. This purpose may have been intertwined with a ritual one, in which some of the carvings or certain elements were intended for communication with the divine, for example, to request their mediation in social interactions with other people or in direct prayers and wishes to deities. The social and ritual practices may have been intertwined or at times clearly distinguished. Above all, however, the structured expressions through image and text functioned in binding people together and people to place, ensuring a lasting reminder for generations of the nomads' presence and interaction with the desert landscape.

7.8. Implications and final reflections

Rock art provides an insight into the worldview, beliefs, and experiences of its makers. It must be used critically, like any archaeological material, but when done so, it can complement other archaeological sources and provide information when other resources are lacking. Through studying it in-depth, we can learn about the role that this material played in the societies that made it and learn more about the societies themselves. In the case of the desert nomads of the Black Desert, there are few sources that can inform us about them and their material culture. The potential of rock art as an archaeological source can therefore not be underestimated. For one, it demonstrates the importance of challenging preconceived notions about subsistence lifeways and the ideology associated with them. Based on the inscriptions, historical sources, and ethnographic parallels, scholars have traditionally discussed the authors of the Safaitic carvings in terms of a pastoral existence. While the rock art supports such a scenario, it also reveals how significant the desert wildlife and hunting was to these societies. Although it does not necessarily imply the importance of hunting in subsistence terms, it indicates that it played a large role in their belief system.

As such, it is important to reconsider what we understand by a 'pastoral ideology'. It is often considered a key characteristic of herding societies, but what this actually entails is still poorly understood (cf. Parkes 1987; Rosen 2008). Ingold (1980, 1994) proposes that the development of pastoral ideologies can be linked to the difference between owning a herd and hunting one. Although various strands of evidence, including the Safaitic rock art, point to a pastoral ideology embedded in the ownership and care of dromedary camels for the ancient nomads of this region, the rock art also suggests that wildlife and hunting were of great significance. Therefore, the pastoral ideology should be revised to encompass not just the domestic animals on which these peoples relied, but also the wild landscape that they exploited and probably revered. Simultaneously, the prevalence of wild fauna and hunting in what could otherwise be termed 'pastoralist' rock art also provides new insights for the interpretation of other rock art across the globe. All too frequently, the depiction of wild animals and hunting is used as an argument

to assign the rock art to an early period and hunter-gatherer communities, such as has been the case for Galician rock art (Bradley 1997: 202). The results of this study again demonstrate the need to revise these kinds of assumptions.

This study has also shown the value of investigating the images and inscriptions in tandem. The two types of engravings are intrinsically linked and the insights that can be gained from one complement the other. By studying only one, we are missing a vital half of the material culture of the desert nomads. In this study, I incorporated the inscriptions in the research on the relationship between the landscape and the carvings and endeavoured to as much as possible include insights from the inscriptions in examining the content and traces of production and consumption of the rock art. The joint study of both types of carvings in future research is essential to better understand this material culture and its makers. The content of the two types of engravings remains to be compared in detail, as do the production techniques and style. This could provide new insights into cultural and temporal diversity in the Black Desert. Following on this, more complete datasets are necessary from across the *harra* to form a better picture of the societies that inhabited it in antiquity. Of utmost importance is that the carvings are systematically surveyed and documented as one. This includes recording the context of the carvings and traces of production and consumption.

Lastly, this study has demonstrated the potential of a material approach to rock art in which content, production, and consumption are examined holistically. The shift from the image to especially production and context in many global rock art studies has been a crucial one in moving the sub-discipline forward. However, it is clear that the images themselves - the content - is still of vital importance to gain a complete picture of this type of material. Additionally, it is important to consider the subsequent process of consumption, studying the biography of rock art from beginning to end. This study has shown how intertwined the processes of production and consumption, and the producer and consumer, can be, especially when investigating the role of context and landscape. A material approach integrating the study of content, production, and consumption is therefore essential for gaining new insights into the role of rock art in societies and into the societies as a whole. This opens up the possibility to understand rock art as a cultural practice and explore its significance on various levels. It is important to note that this should be a focus not only when processing the rock art material, but also when recording it in the field. Doing so affords the opportunity to document minute traces that can shed light on content and the practices of production and consumption.

Many questions remain about the enigmatic pictorial carvings left behind by nomads in the basalt desert of Northern Arabia. Various avenues are still to be explored for us to gain a better understanding of this rock art and of the societies that made it. On a broader scale, rock art holds immense potential for studying the often elusive pastoral nomadic societies that inhabited many, frequently marginal, regions across the globe. For the makers of the Safaitic engravings, their images provide a window, albeit perhaps a foggy one, into their everyday lives, beliefs, and the desert world. What they chose to depict, how they did so, and what happened to the images subsequently exposes a vast scale of interactions between the desert peoples and their domestic and wild landscape. Additionally, it reveals the many complex interactions that the nomads participated in with each other, interactions that spanned time and were intimately connected to the places that held significance for their way of life.

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Appendix A

Terms and definitions

Term	Definition
Abstract	A figure with an abstract or geometric shape.
Anthropomorph	A figure with a human form or attributes.
Composite carving	One or more carvings that form a single composition; can consist of a figure, scene, group, inscription, or combination of these.
Figure	A single petroglyph.
Group of figures	Two or more figures that belong to the same composition, but do not interact.
Incising	The process of carving using a sharp, pointed tool directly on the surface rock.
Pecking	The process of carving through indirect percussion, i.e. using a hammerstone and a chisel to carve on the surface rock.
Percussion	The process of carving through percussion; i.e. using a hammerstone or a hammerstone and a chisel to carve on the surface rock.
Pounding	The process of carving through direct percussion, i.e. carving directly on the surface rock with a hammerstone.
Rock art composition	Collective term for a rock art figure, group of figures, or scene.
Scene	Two or more figures that belong to the same composition and are interacting with one another, reflecting an action.
Zoomorph	A figure with an animal form or attributes.

Appendix B

Sigla and references for Safaitic inscriptions

All inscriptions and translations, with the exception of those from Jebel Qurma, were accessed from the Online Corpus of the Inscriptions of Ancient: North Arabia: http://krc.orient.ox.ac.uk/ociana/index.php/database.

Sigla of editions of inscriptions

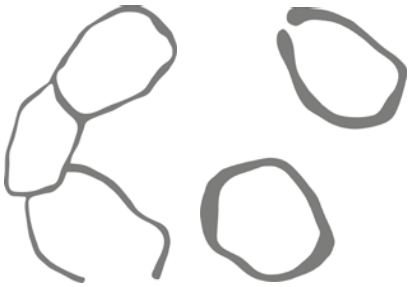
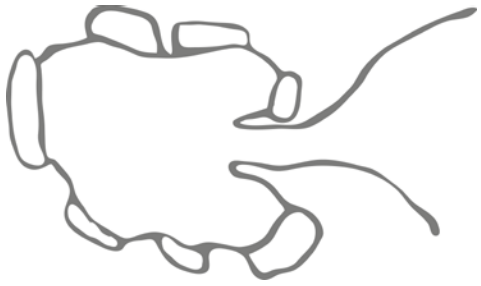
AAEK	Al-Manaser, A.Y.K. 2008. *Ein Korpus neuer safaitischer Inschriften aus Jordanien,* Aachen, Shaker Verlag.
AbaNS	Ababneh, M.I. 2005. *Neue safaitische Inschriften und deren bildliche Darstellungen,* Aachen, Shaker Verlag.
ASWS	Awad, M. 1999. *Dirāsat nuqūš ṣafawiyyah min ǧanūb wādī sārah al-bādiyah al-ʾurdunniyyah aš-šamāliyyah.* Masters Thesis. Irbid, Institute of Archaeology and Anthropology, Yarmouk University.
C	Ryckmans, G. 1950-1951. Corpus Inscriptionum Semiticarum: Pars Quinta, Inscriptiones Saracenicae Continens: Tomus I, Fasciculus I, Inscriptiones Safaiticae. *Paris,* E Reipublicae Typographeo.
HaNSB	Ḥarāḥišah, R. 2010. *Nuqūš ṣafāʾiyyah minaʾl-bādiyah al-ʾUrdunniyyah*. Amman: Ward Books.
HCH	Harding, G.L. 1953. The cairn of Hani. *Annual of the Department of Antiquities of Jordan,* 2, 8-56.
ISB	Oxtoby, W.G. 1968. *Some inscriptions of the Safaitic Bedouin,* New Haven, American Oriental Society.
KRS	Safaitic Inscriptions recorded by G.M.H. King on the Basalt Desert Rescue Survey in north-eastern Jordan in 1989.
LP	Littmann, E. 1943. *Safaïtic Inscriptions*. (Syria. Publications of the Princeton University Archaeological Expeditions to Syria in 1904–1905 and 1909; Division IV. Section D). Leyden: Brill.
QUR-	Safaitic inscriptions recorded within the framework of the Jebel Qurma Archaeological Landscape Project 2012 – 2016, edited by Chiara Della Puppa.
Rees	Inscriptions collected by Captain Rees, in Dussaud, R. 1929. Les relevés du Capitaine Rees dans le désert de Syrie. *Syria,* 10, 144-163.
RSIS	Schirin, R. 2013. *Neue safaitische Inschriften aus Süd-Syrien*. (SSHB 16). Aachen: Shaker Verlag.
SIJ	Winnett, F.V. 1957. *Safaitic Inscriptions from Jordan*. (Near and Middle Eastern Series 2). Toronto: University of Toronto Press.
WH	Winnett, F.V. & Harding, G.L. 1978. *Inscriptions from fifty Safaitic cairns,* Toronto/Buffalo, University of Toronto Press.

Appendix C

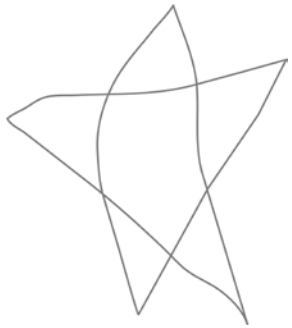
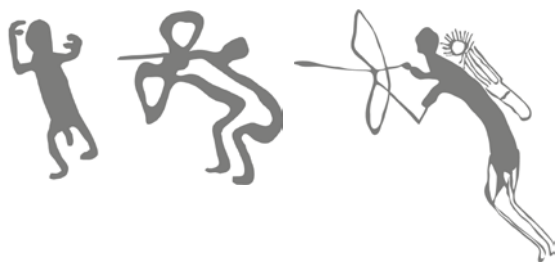
Identification manual for Safaitic rock art

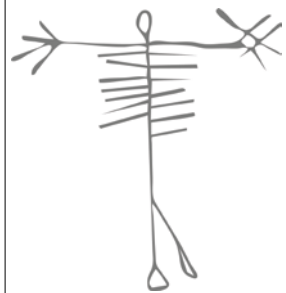
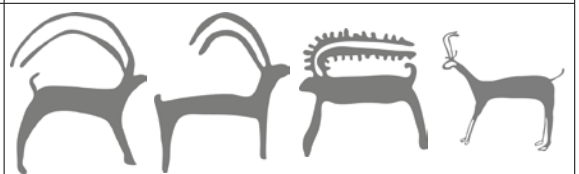
This manual serves as a guide for researchers working on Safaitic rock art to aid in identifying motifs according to the criteria set out in this book. Figures can be identified to type, sub-type (in the case of zoomorphs), and motif. The descriptions enable identification based on the features of the rock art figure. Translation of the associated Safaitic inscription can be necessary to verify and/or narrow down the identification. Similarly, the context in which the figure is depicted is important for the identification of some motifs.

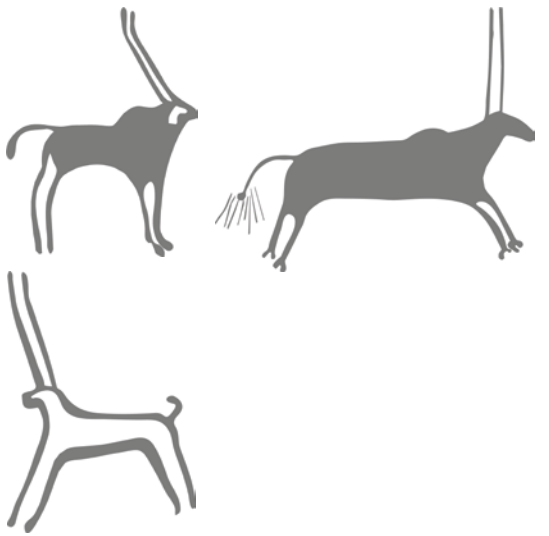
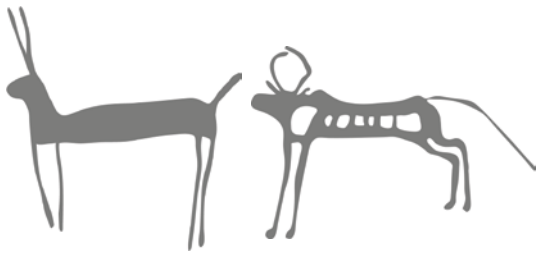
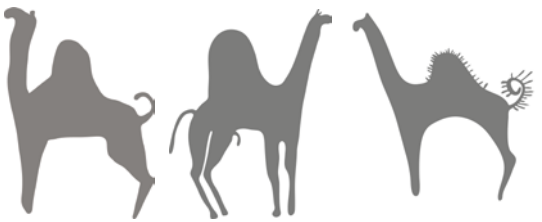
Note: when a clear identification cannot be made, a broader category can be used in combination with the suffix 'unid.' (unidentifiable). This can be due to lack of detail in the depiction but can also be due to weathering, effacement, or superimposition.

Type	Sub-type	Motif	Description	Examples
Abstract		Circles	One or (more commonly) two or more adjacent or intersecting circular forms.	
		Kite	A figure shaped like a desert kite structure, consisting of two long lines (the 'guiding lines' of the kite) pointing out from a large circular shape (the 'enclosure'), and sometimes several smaller circles attached to it (the 'cells').	

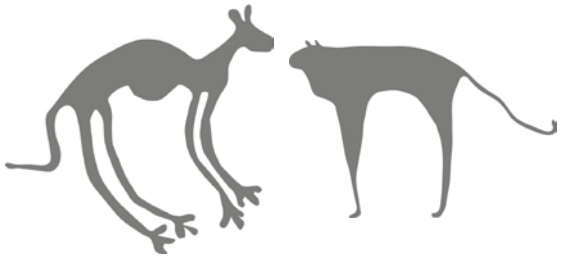
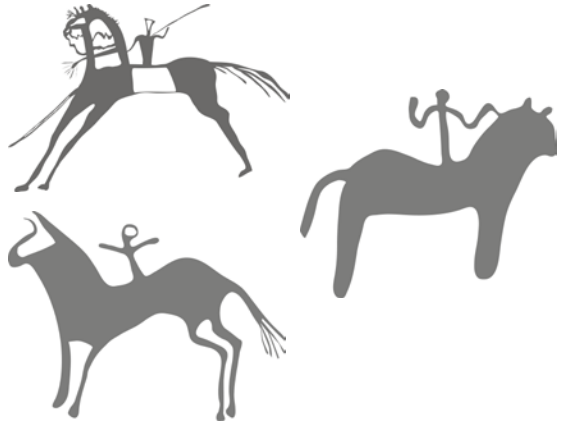
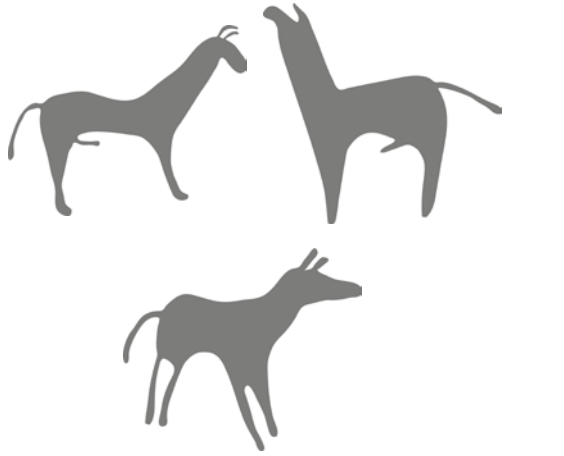
Type	Sub-type	Motif	Description	Examples
Abstract continued		Line and set of dots	A long, narrow mark ('line') depicted together with a 'set of dots'. The line is sometimes curved or forked.	
		Rectangles	A rectangular shape criscrossed by narrow vertical and horizontal lines, making up a checkerboard pattern / many small rectangles.	
		Rayed circle	A circular form with numerous small lines ('rays') pointing out from it.	
		Set of dots	An arrangement of small round marks ('dots'). Most sets consist of seven dots and they are most commonly depicted in a row.	
		Set of lines	An arrangement of long, narrow marks ('lines'). Most sets consist of seven lines parallel to one another.	

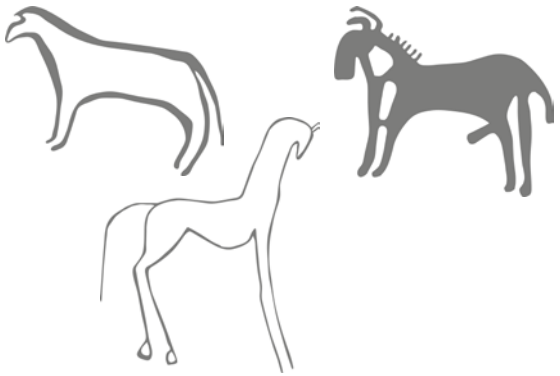
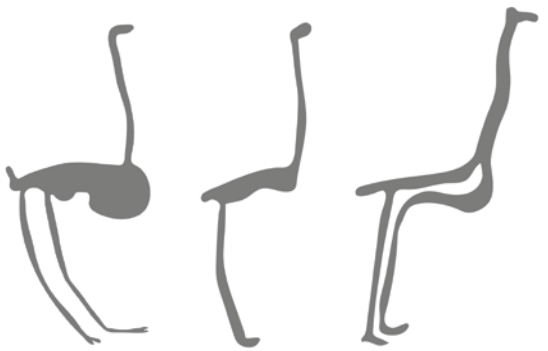
Type	Sub-type	Motif	Description	Examples
Abstract continued		Star shape	Several thin lines that make up a pentagonal, or star, shape.	
		Wheel	A figure - made up of lines or dots - with a round centre, rays pointing out from it ('spokes'), and a line encircling them.	
Anthropomorph		Anthropomorph	A figure with a human form or attributes. Often depicted carrying a weapon, most commonly a bow and arrow.	
		Anthropomorph with dots	An anthropomorph depicted together with several (often seven) small round marks ('dots').	

Type	Sub-type	Motif	Description	Examples
		Anthropomorph with lines	An anthropomorph depicted together with several (often seven) long, narrow marks ('lines').	
Anthropomorph continued		Woman	An anthropomorph with female characteristics, most commonly wide hips, a narrow waist, and long hair. The figure is usually depicted with its arms raised up.	
Zoomorph	Bovid	Ibex	A zoomorph wih bovine features and long scimitar-shaped horns. Often depicted with a short tail sticking up. The female ibex has short horns that are sometime depicted curving backwards; it can only be distinguished from the gazelle if identified in the inscription.	
		Ibex or gazelle	A zoomorph with bovine features nd short horns that are either straight or curve backwards. It can represent a female ibex or gazelle.	

Type	Sub-type	Motif	Description	Examples
		Oryx	A zoomorph with bovine features and long straight horns. The horns are sometimes depicted curving slightly at the ends. The oryx is often depicted with a hump behind its neck and sometimes with a tufted tail.	
Zoomorph continued	Bovid continued	Bovid unid.	A zoomorph with bovine features of which the species cannot be determined due to lack of (distinguishing) features, lack of an inscription, and/or unknown features.	
	Camel	Bactrian camel	A zoomorph with camel features and two humps.	
		Dromedary camel	A zoomorph with camel features and one hump. Sometimes depicted with hairs on the neck, hump, and/or tail. Female camels are depicted with an upcurled tail and sometimes udders. Male camels are depicted with the tail hanging down and sometimes a phallus.	

Type	Sub-type	Motif	Description	Examples
	Carnivoran	Dog	A zoomorph with a canine body, pointed muzzle, and often a tail that curls up. It can be identified as a domesticated dog based on the inscription or based on the context (hunting with humans).	
		Canid unid.	A zoomorph with a canine body, pointed muzzle, and sometimes a tail that curls up. The context or inscription do not aid in identifying it as a dog or wild canid.	
Zoomorph continued	Carnivoran continued	Lion	A zoomorph with a feline body, of which the front is larger than the back, a rounded muzzle, and a long tail. Often depicted with an open mouth and standing as if in pouncing position. The claws are sometimes depicted.	
		Felid unid.	A zoomorph with feline features of which the species cannot be determined due to lack of (distinguishing) features, lack of an inscription, and/or unknown features.	

Type	Sub-type	Motif	Description	Examples
		Carnivoran unid.	A zoomorph with carnivoran-like features of which the species cannot be determined due to lack of (distinguishing) features, lack of an inscription, and/or unknown features.	
Zoomorph continued	Equid	Equid with rider	A zoomorph with equine features that is being ridden. It can have a horse-like appearance (small, fine head and ears, a slim middle and pronounced hindquarters, and a long, full tail that flows from the root) or an ass-like appearance (broad, rounded head, forward curving ears, an upright mane, and a stalk-like tail). It can represent a (young) horse, mule/hinny, or a donkey. If depicted in a hunting or combat context, it represents a (young) horse or mule/hinny. The associated inscription can provide further identification in some cases.	
		Wild ass	A zoomorph with equine features that is being hunted. It is often depicted with a rounded, somewhat downward curving muzzle and forward curving ears. It is has a slim body with pronounced hindquarters.	

Type	Sub-type	Motif	Description	Examples
		Equid	A zoomorph with equine features that is not depicted in a context that allows for further identification. The appearance tends to vary between horse-like and ass-like. It can represent a (young) horse, mule/hinny, donkey, or wild ass. The associated inscription can provide further identification in some cases.	
Zoomorph continued	-	Ostrich	A bird zoomorph with long, narrow leg(s), a rounded or rectangular body, and a long, narrow neck. The head and feet are usually small and lack details. Sometimes the toes and tail are depicted and, more rarely, the features and/or wing.	
	-	Ungulate unid.	A zoomorph with an ungulate-shaped body of which the species cannot be determined due to lack of (distinguishing) features, lack of an inscription, and/or unknown features.	
	-	Quadruped unid.	A zoomorph with four legs but no other distinguishing features.	-

Appendix D

List of sites with Safaitic carvings

List of sites in the Jebel Qurma region surveyed between 2012 and 2016 and the number of individual figures and the number of composite carvings at each site. As stated in Chapter 3 and in Appendix A, composite carvings can be a rock art composition, an inscription, or the association of both.

Site	N of individual figures	N of composite carvings
QUR-1	5	5
QUR-2	346	643
QUR-5	18	34
QUR-6	15	19
QUR-7	45	108
QUR-8	0	1
QUR-9	8	24
QUR-10	0	6
QUR-12	83	83
QUR-14	0	1
QUR-20	32	60
QUR-21	23	11
QUR-23	12	17
QUR-25	41	40
QUR-27	8	16
QUR-28	49	75
QUR-32	37	72
QUR-34	0	3
QUR-36	5	6
QUR-39	5	11
QUR-64	289	463
QUR-120	16	13
QUR-122	6	20
QUR-123	2	4
QUR-135	1	1
QUR-136	0	8
QUR-137	66	90
QUR-139	13	27
QUR-140	0	4
QUR-141	12	30
QUR-143	0	1
QUR-146	9	30
QUR-147	27	58

Site	N of individual figures	N of composite carvings
QUR-148	196	321
QUR-162	23	43
QUR-171	119	282
QUR-172	4	22
QUR-175	1	10
QUR-176	92	140
QUR-182	1	1
QUR-185	1	2
QUR-186	202	398
QUR-195	10	10
QUR-202	15	28
QUR-203	1	2
QUR-207	30	56
QUR-210	11	39
QUR-215	45	71
QUR-220	2	1
QUR-232	14	25
QUR-235	7	5
QUR-237	0	5
QUR-238	4	4
QUR-239	5	25
QUR-243	1	4
QUR-244	3	11
QUR-245	0	1
QUR-246	0	1
QUR-249	21	26
QUR-251	1	1
QUR-252	19	17
QUR-253	6	4
QUR-254	1	7
QUR-255	1	2
QUR-256	49	67
QUR-258	86	73

Site	N of individual figures	N of composite carvings
QUR-259	1	1
QUR-261	3	10
QUR-262	2	1
QUR-263	0	1
QUR-267	4	3
QUR-268	6	11
QUR-275	2	1
QUR-276	22	23
QUR-283	3	6
QUR-289	4	23
QUR-290	62	169
QUR-294	52	104
QUR-296	2	5
QUR-297	13	21
QUR-304	3	7
QUR-305	31	33
QUR-307	46	71
QUR-309	2	9
QUR-313	2	2
QUR-316	3	3
QUR-318	1	1
QUR-319	2	7
QUR-321	2	3
QUR-322	0	2
QUR-325	1	3
QUR-333	18	34
QUR-337	0	1
QUR-343	2	1
QUR-344	1	1
QUR-360	4	23
QUR-362	8	10
QUR-368	0	1
QUR-370	225	253
QUR-372	82	144
QUR-373	2	5
QUR-376	13	28
QUR-379	1	3
QUR-391	0	1
QUR-400	3	6
QUR-412	1	1
QUR-422	11	13
QUR-424	6	5

Site	N of individual figures	N of composite carvings
QUR-426	2	2
QUR-428	22	43
QUR-429	1	3
QUR-435	0	1
QUR-437	8	9
QUR-439	78	60
QUR-440	14	4
QUR-441	4	9
QUR-442	25	24
QUR-444	1	1
QUR-447	1	2
QUR-449	70	106
QUR-451	0	1
QUR-458	19	19
QUR-460	2	1
QUR-461	2	3
QUR-462	1	5
QUR-470	0	1
QUR-474	7	11
QUR-475	0	5
QUR-479	0	1
QUR-481	9	13
QUR-489	4	2
QUR-491	3	6
QUR-493	0	1
QUR-496	15	24
QUR-497	9	25
QUR-500	1	1
QUR-505	0	1
QUR-507	1	1
QUR-508	1	1
QUR-509	0	1
QUR-511	0	1
QUR-512	0	1
QUR-514	0	1
QUR-516	1	4
QUR-520	3	3
QUR-521	3	15
QUR-522	1	8
QUR-523	26	27
QUR-525	2	1
QUR-526	1	1

Site	N of individual figures	N of composite carvings
QUR-529	36	29
QUR-531	7	18
QUR-533	12	31
QUR-541	7	18
QUR-547	3	3
QUR-551	102	103
QUR-553	16	14
QUR-563	0	1
QUR-565	13	2
QUR-573	0	2
QUR-575	3	7
QUR-586	28	32
QUR-588	3	2
QUR-591	1	2
QUR-595	0	1
QUR-598	0	1
QUR-601	2	2
QUR-603	2	4
QUR-606	4	10
QUR-610	8	11
QUR-611	7	17
QUR-613	10	9
QUR-624	2	2
QUR-626	11	23
QUR-627	2	2
QUR-628	29	56
QUR-636	0	2
QUR-639	41	17
QUR-640	3	15
QUR-642	3	3
QUR-653	0	2
QUR-654	0	1
QUR-655	13	13
QUR-657	0	2
QUR-665	1	2
QUR-667	0	1
QUR-668	0	0
QUR-669	28	56
QUR-670	2	1
QUR-671	2	2
QUR-673	6	7
QUR-675	0	2

Site	N of individual figures	N of composite carvings
QUR-678	8	10
QUR-679	1	7
QUR-683	41	59
QUR-687	0	1
QUR-689	1	8
QUR-690	1	1
QUR-692	1	1
QUR-694	6	6
QUR-695	4	3
QUR-700	0	1
QUR-702	1	1
QUR-704	1	2
QUR-706	0	1
QUR-714	1	1
QUR-718	0	2
QUR-724	1	1
QUR-728	9	7
QUR-732	0	8
QUR-733	33	50
QUR-734	0	3
QUR-739	85	92
QUR-740	7	8
QUR-741	0	2
QUR-744	3	5
QUR-745	1	2
QUR-749	0	1
QUR-752	2	1
QUR-754	2	1
QUR-758	6	7
QUR-760	4	1
QUR-764	1	1
QUR-765	0	1
QUR-766	19	49
QUR-775	0	4
QUR-779	21	36
QUR-783	0	2
QUR-784	0	1
QUR-786	20	25
QUR-788	6	6
QUR-794	7	7
QUR-796	6	7
QUR-802	11	12

Site	N of individual figures	N of composite carvings
QUR-803	7	18
QUR-808	0	1
QUR-813	1	1
QUR-814	7	6
QUR-815	2	2
QUR-819	1	1
QUR-822	5	18
QUR-823	8	33
QUR-827	2	1
QUR-829	0	1
QUR-832	6	4
QUR-834	7	2
QUR-838	0	1
QUR-839	48	45
QUR-842	2	4
QUR-859	1	4
QUR-864	3	3
QUR-865	0	1
QUR-867	4	4
QUR-901	0	1
QUR-903	0	1
QUR-905	1	1
QUR-907	3	7
QUR-909	0	2
QUR-911	7	11
QUR-913	3	28
QUR-915	3	3
QUR-917	0	1
QUR-919	1	1
QUR-930	0	2
QUR-931	7	13
QUR-932	0	1
QUR-933	8	15
QUR-934	2	1
QUR-936	2	8
QUR-938	3	4
QUR-943	0	2
QUR-947	2	1

Site	N of individual figures	N of composite carvings
QUR-948	2	1
QUR-949	1	1
QUR-950	4	8
QUR-951	6	12
QUR-952	52	90
QUR-956	113	154
QUR-958	6	4
QUR-960	7	8
QUR-961	12	18
QUR-962	1	2
QUR-963	0	2
QUR-965	43	78
QUR-970	0	3
QUR-972	0	2
QUR-974	54	72
QUR-975	9	14
QUR-977	0	1
QUR-980	45	43
QUR-983	1	1
QUR-994	6	5
QUR-998	15	30
QUR-999	12	7
QUR-1000	2	1
QUR-1006	0	1
QUR-1008	5	18
QUR-1012	7	1
QUR-1014	1	25
QUR-1015	0	1
QUR-1016	47	73
QUR-1020	54	79
QUR-1022	3	3
QUR-1028	0	4
QUR-1031	9	19
QUR-1046	0	1
QUR-1051	3	9
QUR-1059	1	1
QUR-1064	1	4
Total	**4512**	**7208**

The Safaitic rock art of the North Arabian basalt desert is a unique and understudied material, one of the few surviving traces of the elusive herding societies that inhabited this region in antiquity. Yet little is known about this rock art and its role in the desert societies. Why did these peoples make carvings in the desert and what was the significance of this cultural practice? What can the rock art tell us about the relationship between the nomads and their desert landscape? This book investigates these questions through a comprehensive study of over 4500 petroglyphs from the Jebel Qurma region of the Black Desert in north-eastern Jordan. It explores the content of the rock art, how it was produced and consumed by its makers and audience, and its relationship with the landscape. This is the first-ever systematic study of the Safaitic petroglyphs from the Black Desert and it is unique for the study of Arabian rock art. It demonstrates the value of a material approach to rock art and the unique insights that rock art can provide into the relationship between nomadic herders and the wild and domestic landscape.

Nathalie Østerled Brusgaard is an archaeologist specialised in rock art studies and social zooarchaeology. She did her PhD at Leiden University, the Netherlands, focusing on the rock art of nomadic herders in the Black Desert of Jordan and their interaction with the desert landscape. It is the first-ever systematic documentation and study of Safaitic rock art. Nathalie has worked at excavations in the Netherlands and Germany and on rock art surveys in Jordan and the US. She is interested in human-animal relationships and human-landscape interactions and researches these topics from a multidisciplinary perspective.