

# Images of the Environment:

## Rock Art and the Exploitation of the Jordanian Badiah

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Surveys throughout Jordan have encountered the artistic expressions of hunters and pastoralists for decades, but focused discussion of the images pecked and scratched into the surfaces of rocks have been relatively rare; exceptions are to be found, of course (for example, numerous articles in the journal *Studi per l'Ecologia del Quaternario*), but for the vast majority of publications, the reports concentrate on architecture, tools and pottery, portable art, inscriptions, and direct indicators of economic subsistence activities.

In 2002, 2007, and 2008 our surveys in the eastern *badiah* of Jordan (Rollefson and Wasse 2009; Rowan et al. 2009; Wasse and Rollefson 2005; Wasse et al. n.d.) located considerable numbers of examples of rock art and inscriptions, and it is our intent in this report to present representative instances of rock art depictions of animals and “devices” recorded during our field research. The images reflect not only the elements of the environment that hunting groups or herding peoples considered to be worthy of portrayal, they also provide important information on what elements were *not* deemed important enough to be preserved on stone.

The area of our research is part of the so-called “Black Desert” that includes a broad field of

basalt-covered landscapes ranging from much of eastern Syria through the panhandle of Jordan and to a more limited degree down into Saudi Arabia. The topography includes large areas of essentially flat plains, although there are significant regions where there are rolling, boulder-strewn hills and shallow wadis; occasionally wadis can also be deeply incised into some parts of the terrain. The research area extends from Maitland’s Hillfort and other basalt-capped mesas in the western part of the panhandle to Jabal adh-Dharwa farther south, to Wisad Pools farther east, and out to Tell al-Hibr at the eastern edge of the basalt desert (Fig. 1; cf. description in Wasse, Rollefson and Rowan n. d.).

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**Fig. 1.** Location of the Eastern Badiyah Archaeological Project research area in Jordan's Black Desert. Maitland's Hillfort is one of the mesas  
(Source: Google Earth)

We have classified our findings into nine provisional categories, although we stress that identification of some of the specific depictions might require revision as the corpus of images increases with additional field research. The categories we have developed include: 1) ibex; 2) oryx; 3) other antelope; 4) horse; 5) camel; 6) ostrich; 7) “exotic”; 8) human; and 9) kites.

## Ibex

Ibex (or wild goat) examples are virtually ubiquitous in the eastern *badiyah*, and this probably reflects not only the relative importance of this animal to the diet of both prehistoric hunting groups, but also to pastoralists who hunted the animal to supplant the need for slaughtering individuals of their

herds of sheep, goats, and camels to supply meat for their nutritional needs.

Individual ibex illustrations show a wide range of stylistic differences. Some individuals are highly schematic, with a box-like body on four vertical lines representing legs and long, low arcing horns that reach the length of the simple linear animal back to a stubby tail from an “open” triangular head (**Fig. 2**). Variations on this theme include heads and bodies that are more realistically rendered (**Fig. 3**), although horns can be elaborately exaggerated in huge coils (**Fig. 4**) or even loops (**Fig. 5**). Degrees of realism range from almost none (**Fig. 2**) to the depiction of such details as a beard (**Figs. 6-8**). A word of caution is appropriate here: highly schematized drawings can easily lead to error



**Fig. 2.** Highly schematized linear representation of an ibex from Jordan's eastern *badiyah*  
(Photo: G. Rollefson)



**Fig. 2a.** Ibex (www.flickr.com)



**Fig. 3.** Ibex from Wisad Pools Gallery 2, with somewhat realistic expression of body contours  
(Photo: G. Rollefson)

**Fig. 4.** Ibex from Wisad Pools Gallery 2, with exaggerated coiling of the horns around a natural cavity in the basalt stone; note the suggestion of a beard  
(Photo: G. Rollefson)



**Fig. 5.** High looping horns on two ibex animals at Gallery 2, Wisad Pools  
(Photo: G. Rollefson)



**Fig.6.** A Nubian ibex (*Capra ibex nubiana*), whose range extends from mountainous areas of Egypt and Sudan through Jordan and the Saudi peninsula  
(Source: [www.photo.com](http://www.photo.com))



**Fig. 7.** A long-tailed ibex with a prominent beard from Gallery 1 at Wisad Pools  
(Photo: G. Rollefson)



**Fig. 8.** Relatively realistically rendered ibex with a prominent beard from Gallery 1 at Wisad Pools  
(Photo: G. Rollefson)

in terms of identifying animals to particular species, and even to genus. (Fig. 2), for example, could easily represent the scimitar-horned oryx (*Oryx dammah*), which have long and curving horns that reach back to the hindquarters (Fig. 9). The Arabian oryx (*Oryx leucoryx*) also has long

horns, but they tend to be more vertical and less bowed, and the horns do not protrude back as far along the body (Fig. 10a). Due to these sources of uncertainty, it is not at all clear what the relative frequencies of ibex and oryx might be among the rock art images.



**Fig. 9. Scimitar-horned oryx (*Oryx dammah*)**  
(Source: Wikipedia)



**Fig. 9. Scimitar-horned oryx (*Oryx dammah*)**  
(Source: www.flickr.com)

## Oryx

If ibex were ubiquitous, oryx were the opposite in terms of the frequency of rock-drawn images. We recorded clear examples of oryx from only one site (B129, just a couple kilometers east of Wisad Pools). The carvings are associated (based on comparative patina) with Safaitic inscriptions, so perhaps this is an indication of the relative population density during this period (cf. al-Kharaysheh 2007).

There is little reason to doubt the identification of the B129 animals as oryx: one set of three of them has a good degree of realism in the horn and body morphology of oryx (**Fig. 11**), although the specimen from another nearby rock, probably made by a different individual but at about the same time, shows a control that is much less proficient in portraying the horns and legs of the beast (**Fig. 12**).



**Fig. 10a.** Arabian oryx (*O. leucoryx*)  
*Source: www.google.com*





**Fig. 11.** Trio of oryx from site B129, near Wisad Pools, eastern Jordan.  
(Photo: Y. Rowan)



**Fig. 12.** Lone oryx from site B129  
(Photo: Y. Rowan)

## Other Antelope

Animals with twisted horns occur in the eastern *badiyah* but in relatively small numbers. (Fig. 13) presents an image with very twisted horns, as does (Fig. 14). There are several other examples from our research area in the eastern *badiyah*, but the preservation is not as good.



**Fig. 13.** Twisted-horned animal (kudu?) from Gallery 1, Wisad Pools (Photo: G. Rollefson)

Twisted-horn animals have also been found in southern Jordan rock art as well, and there has been extensive discussion on what genera/species they may represent (Borzatti and Massetti 1991). The degree of curvature in the coiled horns can be difficult to determine in a two-dimensional drawing, and this can be treacherous when attempting to identify the animals,

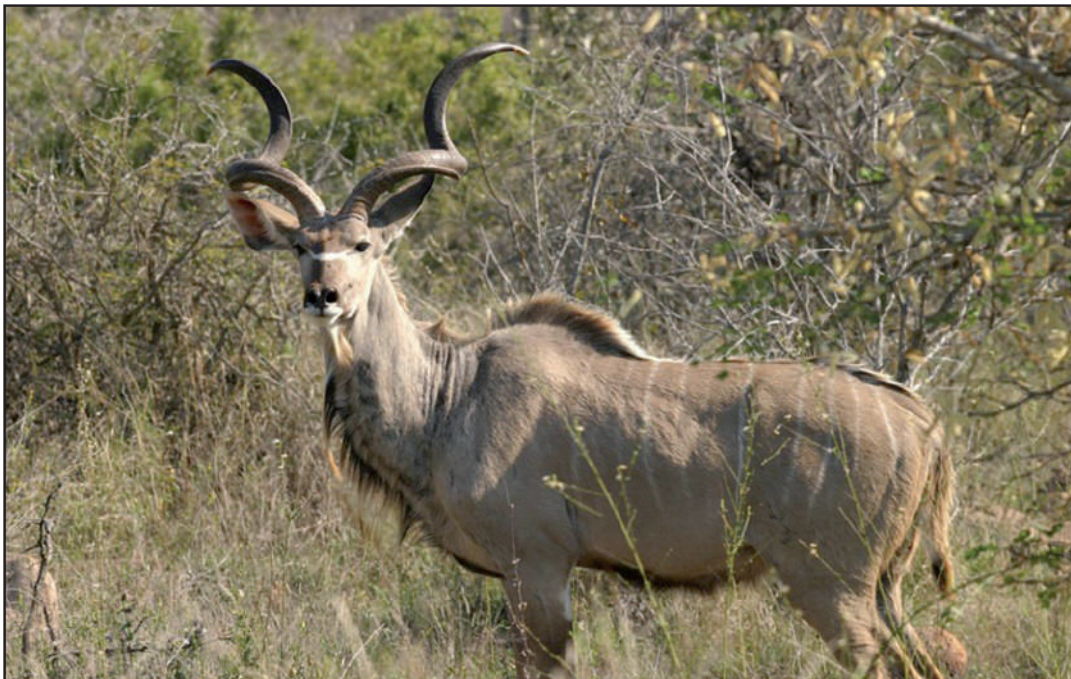
particularly when we are not aware of the amount of intraspecies variability in this characteristic. Lightly twisted horns might represent the antelope addax (*Addax nasomaculatus*), a desert dweller known from the Sahara and possibly a resident of the Levantine deserts in the past (Fig. 15). But the extreme twisting in some of the rock art specimens (Fig. 13) could also be related to either the greater kudu (*Tragelaphus strepsiceros*) (Fig. 16) or the lesser kudu (*Tragelaphus imberbis*) (Fig. 17); the latter species is more arid-adapted and thus is perhaps a more likely candidate for these particular depictions.



**Fig. 14.** Another twisted-horn animal (kudu?) from Gallery 1, Wisad Pools. (Photo: Y. Rowan)



**Fig. 15.** An addax (*Addax nasomaculatus*) from Africa.  
(Source: Wikimedia)



**Fig. 16.** A Greater kudu (*Tragelaphus strepsiceros*) from Africa  
(Source: [www.mcculagh.org](http://www.mcculagh.org))




Fig. 17. A lesser kudu (*T. imberbis*)  
from Africa  
(Source: [www.photos.com](http://www.photos.com))

## Equid

Onagers (*Equus hemionus*) are equids that are somewhat tolerant of dry conditions, as their presence in steppic areas attests. Evidence of the hunting of equids in Jordan goes back to the Lower Paleolithic, at least 300,000 years ago

(Clutton-Brock 1989: 392-393; Rollefson et al. 2006: 64-65). The appearance of domesticated horses (*E. caballus*) in the Levant was a relatively recent phenomenon, and it is unlikely they were introduced much before 2,000 BC. Equids with riders can be taken to represent domesticated horses (e.g. **Figs. 18-19**) as opposed to

onagers, and their appearance in the desert region is indicative that the rock drawings date from no earlier than this age, although many of the images could be much later, particularly if the patination of the images is about as developed as Safaitic inscriptions on the same stone.



**Fig. 18.** Horse and rider bearing a weapon near Wisad Pools  
(Photo: G. Rollefson)



**Fig. 19.** Well developed horse with a crude rider scratched atop it, from near Wisad Pools  
(Photo: G. Rollefson)



**Fig. 20.** Horse with what appears to be a bridle running from the mouth to the mane  
(Photo: G. Rollefson)

The appearance of horse images is rare in our research area: only a couple of sites near Wisad Pools produced them. Given that Wisad Pools are distant from permanent sources of water and from the amount of pasturage horses require, the rarity is understandable. (On the other hand, visits to Wisad Pools during and shortly after the rainy season would be possible because water was abundant in the pools and grass

would have been available in the *wadi* beds and on some of the plains).

The identification of equids to the species level is less certain if riders are not on the animal. (Fig. 20) shows what appears to be a horse despite the absence of a rider, for there seems to be a bridle running from the mouth to the mane. The animals in (Figs. 21-22) could easily be onagers.



**Fig. 21.** Horse or onager and an ostrich from near Wisad Pools  
**(Photo: G. Rollefson)**



**Fig. 22.** Two horses or onagers at the right; possible tribal signs (wusum) at the left  
**(Photo: G. Rollefson)**

## Camel

The camel is virtually synonymous with desert habitats, and this animal probably is the most abundantly depicted mammal in the *badiah*. Like equids, wild species of camel were hunted in the Lower Paleolithic (Clutton-Brock 1989; Rollefson et al. 2006). There is good evidence for camel domestication in Asia and the Arabian Peninsula before 2500 BC, but conclusive evidence for their presence in the Levant is not attested until the Iron Age, when bones become numerous in archaeological sites (Köhler-Rollefson 1993:182-184). As a consequence, images of camels

in Jordanian rock art sites probably are younger than 3,000 years ago, at the very oldest, although the majority are probably much younger.

Also analogous to horses, the importance of domesticated camels was not in their value as sources of meat (although milk from both animals was probably used) but in their utility as means of transportation. Thus, depictions of camels (and domesticated horses) were not related to the hunt *per se*, but instead as a means to engage in hunting other large animals in the arid regions of the Levant or as means to attack humans (**Fig. 23**).



**Fig. 23.** A camel and spearman from atop the northernmost crag at Shmaysaniyat, southwest of Wisad Pools.

(Photo: G. Rollefson)



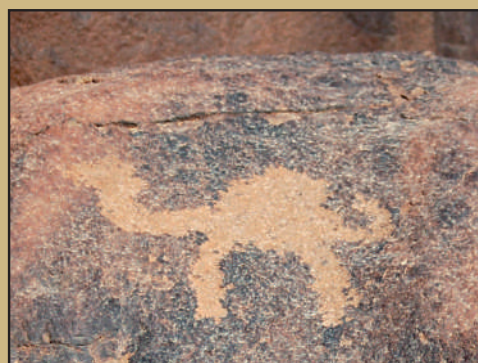
**Fig. 24.** Simple camel style, partly open outline, partly filled-in, from near Wisad Pools.

(Photo: G. Rollefson)



**Fig. 25.** A camel “on steroids” with detailed depiction of hair on the hump and tail

(Photo: G. Rollefson)



**Fig. 26.** A simply designed filled-in camel; on the basis of the relatively bright patina, this might be rather young in terms of its date of execution

(Photo: G. Rollefson)





**Fig. 27.** Camels and inscriptions on the side of a “tower tomb” at Wisad Pools (Photo: G. Rollefson)

Because there is such a large plurality of camels in *badiyah* rock art, it is not surprising that there is also a correspondingly high variability in the styles and quality of the execution of the portrayals (Figs. 24-27); sometimes the

depictions take on traits of cartoons (Fig. 28). How much of this is due to cultural canons that change with time and how much is the consequence of artistic skills and patience can't be determined at the present time.



**Fig. 28.** The exaggerated length and posture of the neck and the hump produce a cartoon-like character to this camel (Photo: G. Rollefson)

## Ostrich

Although romantic images of Arab desert dwellers often include a man and his falcon, birds are almost never depicted in rock art with the exception of ostriches,

which in fact are relatively frequent. Ostriches can be realistically etched or they can approach *beaux arts* fluidity and proportions; while often displayed in groups, ostriches also appear singly (Figs. 29-30).



Fig. 29. A pair (above) and a trio (below) of ostriches from atop Maitland's Hillfort in the eastern *badiah*  
(Photo: G. Rollefson)



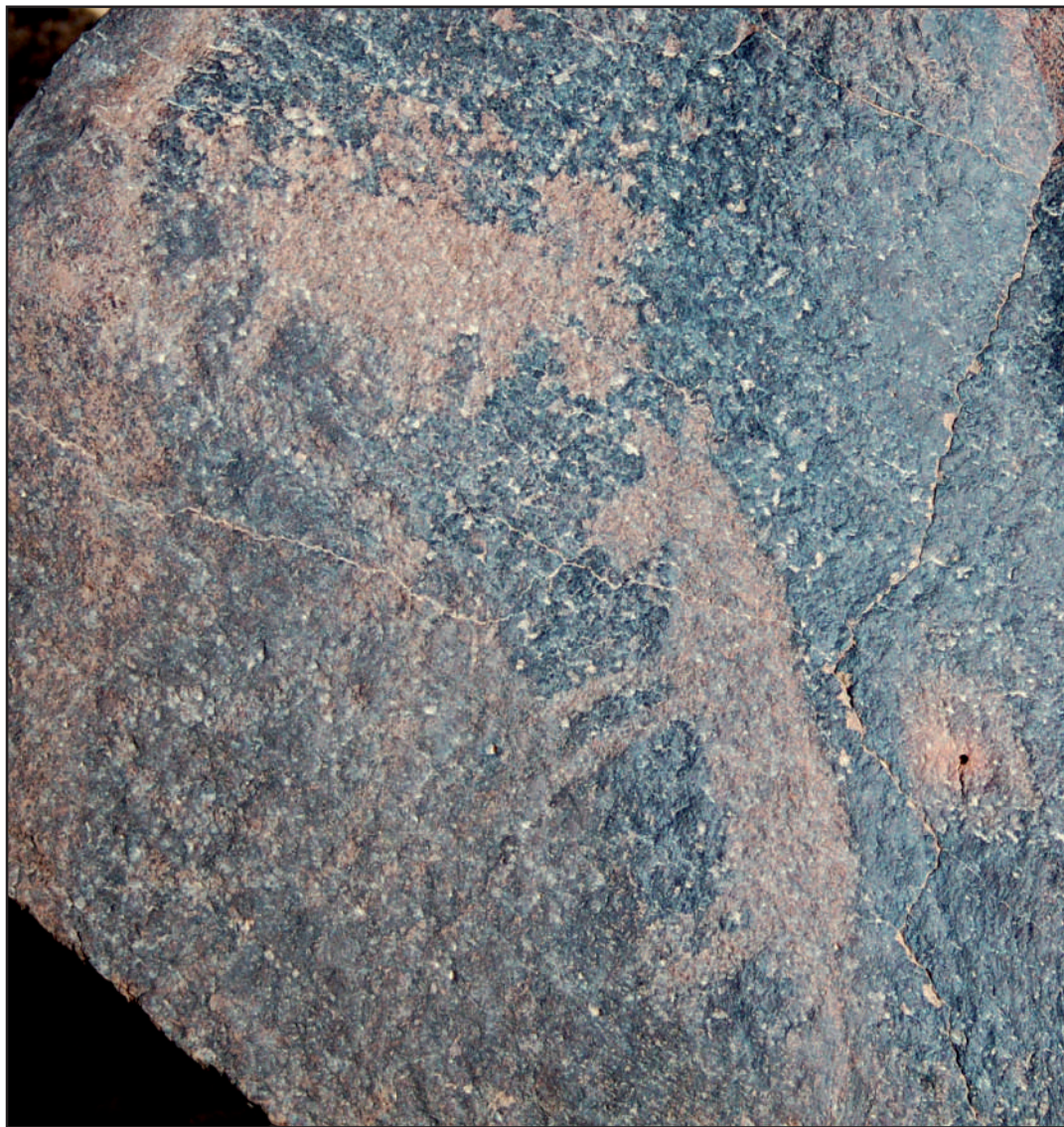
**Fig. 30.** An isolated ostrich (above) and a pair of ostriches from near Wisad Pools  
**(Photo: G. Rollefson)**



## “Exotic”

Some animal images are so rare or bizarrely executed that it is not clear if real or fictive animals were illustrated. Hyenas have not been reported as a prey for hunters, so their presence as rock art probably is associated with behaviors inimical to hunters and herders alike. (Fig. 31) shows a possible hyena, although the lack of a pronounced hump just behind the neck suggests it could also be a dog or wolf. (Fig. 32) is

evidently another carnivore, possibly a lion in view of the prominent claws and the ears framed above what appears to be a mane. Lions were native to the Syrian steppe and desert according to Pliny the Elder (also cf. Rhotert 1938: 223). Wolves and lions also are depicted in several areas of the Arabian peninsula, including Jabal Yatib (Nayeem 2000: 180 and Figs. 237-238), Suweidra (Nayeem 2000: 127 and Fig. 151), Jubbah (Nayeem 2000: 131 and Fig. 153), Sakaka (Nayeem 2000: 204 and Fig. 287).



**Fig. 31.** A hyena, dog, or wolf appears to stalk an unidentifiable animal in Gallery 1, Wisad Pools.  
(Photo: G. Rollefson)



**Fig. 32.** A ferocious beast with prominent claws, possibly representing a lion, from Gallery 2 at Wisad Pools (Photo: G. Rollefson)



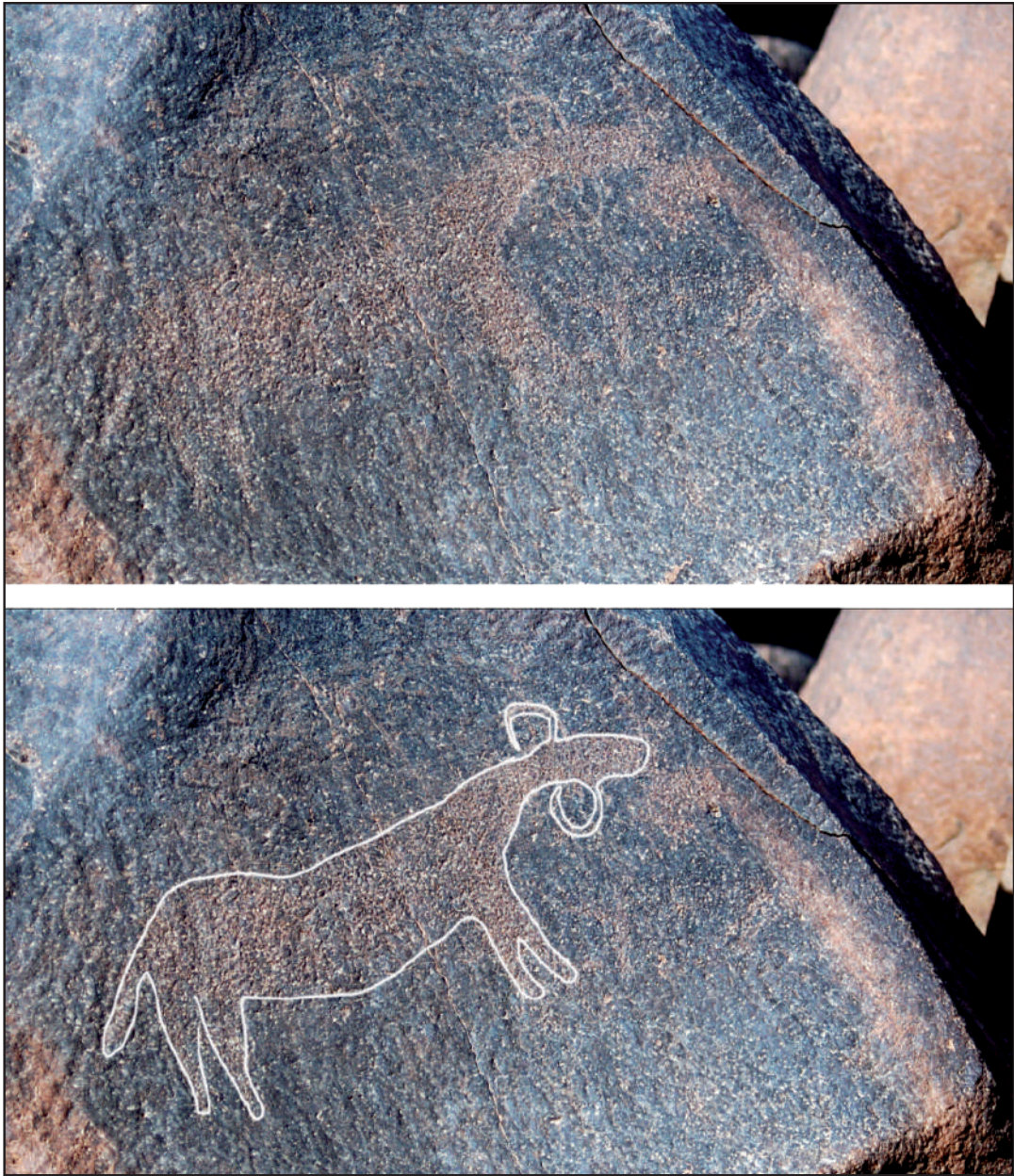
**Fig. 33.** Unidentified, possibly immature animal; the bent horns could indicate a bovid calf (cf. Nayeem 2000, p. 246) (Photo: G. Rollefson)



**Fig. 34.** A trio of animals, possibly young oryx?  
(Photo: G. Rollefson)

Less frightening animals include some examples that may represent either juveniles or bad art. Fig. 33 is a docile-looking animal with short horns that make a 90° bend outwards: juvenile addax? poorly rendered gazelle? A bovid calf? Ambiguity is also characteristic of Fig. 34, in which the three animals could be juveniles of just about any horned species. Finally, **Fig. 35** represents a creature that would not have felt at home

at all in the region around Wisad Pools: a member of the cattle family. The drawing is very similar to one from Kilwa (Rhotert 1938: Tafel 19:1), and there are also close analogs at Hanakiya in Saudi Arabia (Nayeem 2000: 120, 125 and Fig. 141), Khamasin (Nayeem 2000: 222 and Figs. 322-333), Wadi Robia and al Hazira in Saada province, Yemen (Nayeem 2000: 468 and Figs. 19 and 24), among others.



**Fig. 35.** A member of the Bos family, with enhancement effected using Photoshop below  
(Photo: G. Rollefson)

One final aspect of “exotic” rock art in the eastern *badiyah* is a set of geometric engravings at Gallery 2 at Wisad Pools (Fig. 36). The ibex with knobby horns overlies an earlier pair of objects that are concentric circles, four in the upper register and three in the lower. To the right of the ibex and circles is a small “V” above a circle: could this be a “sign” or

a human stick figure (see below)? (This element appears to be contemporaneous with the ibex in view of the similarity in brightness of the patinas). There are possibly other geometrics in the Wisad Pools region, but such candidates are often badly obscured by weathering or later overlying engravings, or the “geometrics” might simply be variations on tribal signs (*wusum*).



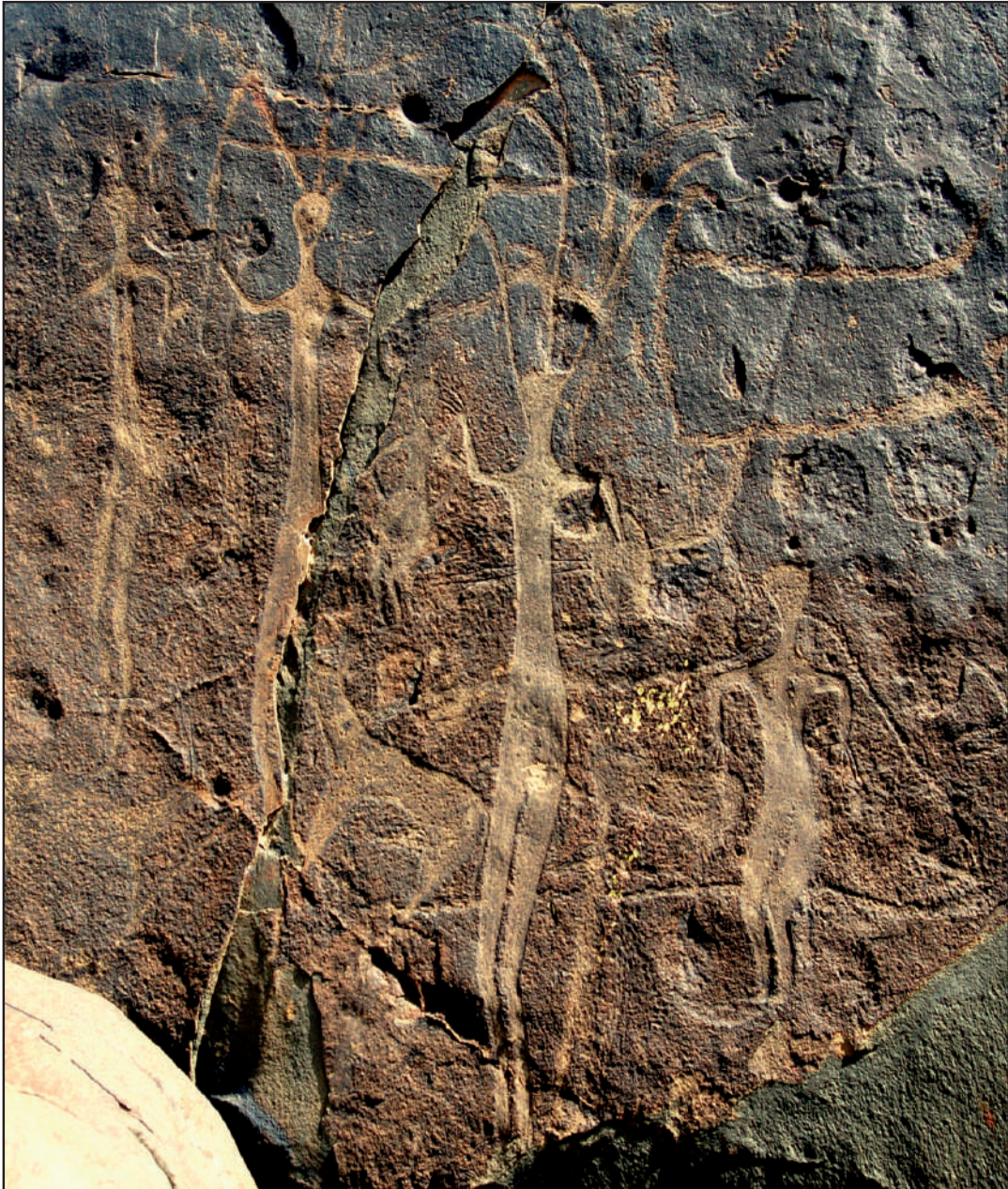
**Fig. 36.** A knobby-horned ibex has been engraved over an earlier set of concentric circles at Gallery 2, Wisad Pools  
**(Photo: G. Rollefson)**



## Human

Human riders have already been mentioned in the sections on horses and camels, but there are other scenarios involving the presence of humans. In general, human figures play a minor role in the eastern badiah compared, for example, with the southwestern part of the Arabian Peninsula

(cf. Nayeem 2000: 23-288). In contrast to the sophisticated elegance of the dancers at as-Sawda, in Saudi Arabia's Asir province (Fig. 37), for instance, the humans displayed in the eastern badiah are simple and crude. In Fig. 38\*, the humans are simple stick figures, bearing strong resemblance to those figures from al-Ula in northern Saudi Arabia (Nayeem 2000: Fig. 114).



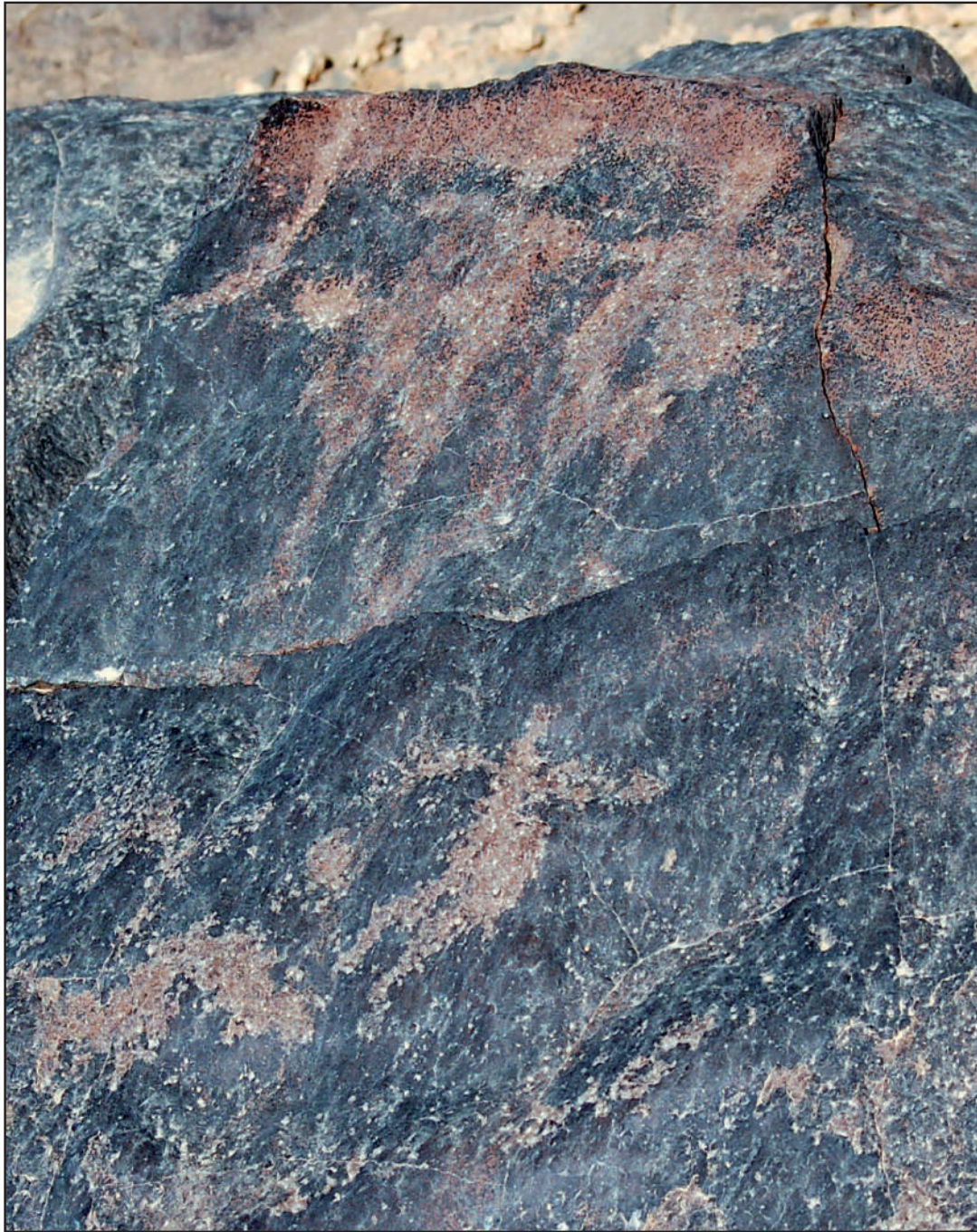
**Fig. 37.** Slender, lithe dancers and a seated female from al-Sawda, Asir province, SW Saudi Arabia  
(Photo: G. Rollefson)



**Fig. 38.** Two anthropomorphic stick figures in a tableau with ibexes and a possible lion  
(Photo: G. Rollefson)



**Fig. 39.** A human figure with outstretched arms near a kite depiction, Gallery 2, Wisad Pools  
(Photo: Y Rowan)



**Fig. 40.** A pair of humans at the top of the stone are probably not related to the third figure at the bottom; from Gallery 2 at Wisad Pools  
(Photo: G. Rollefson)

Somewhat more realistic human figures can be seen elsewhere at Wisad Pools. The pudgy human in (Fig. 39) is part of a larger tableau that includes a hunting kite (see below). In (Fig. 40), the figure at the upper left might

be holding a bow or other weapon, and it might be embracing the human figure to its proper left. The third human below might be engaged with an unidentified animal at the lower left of the stone.



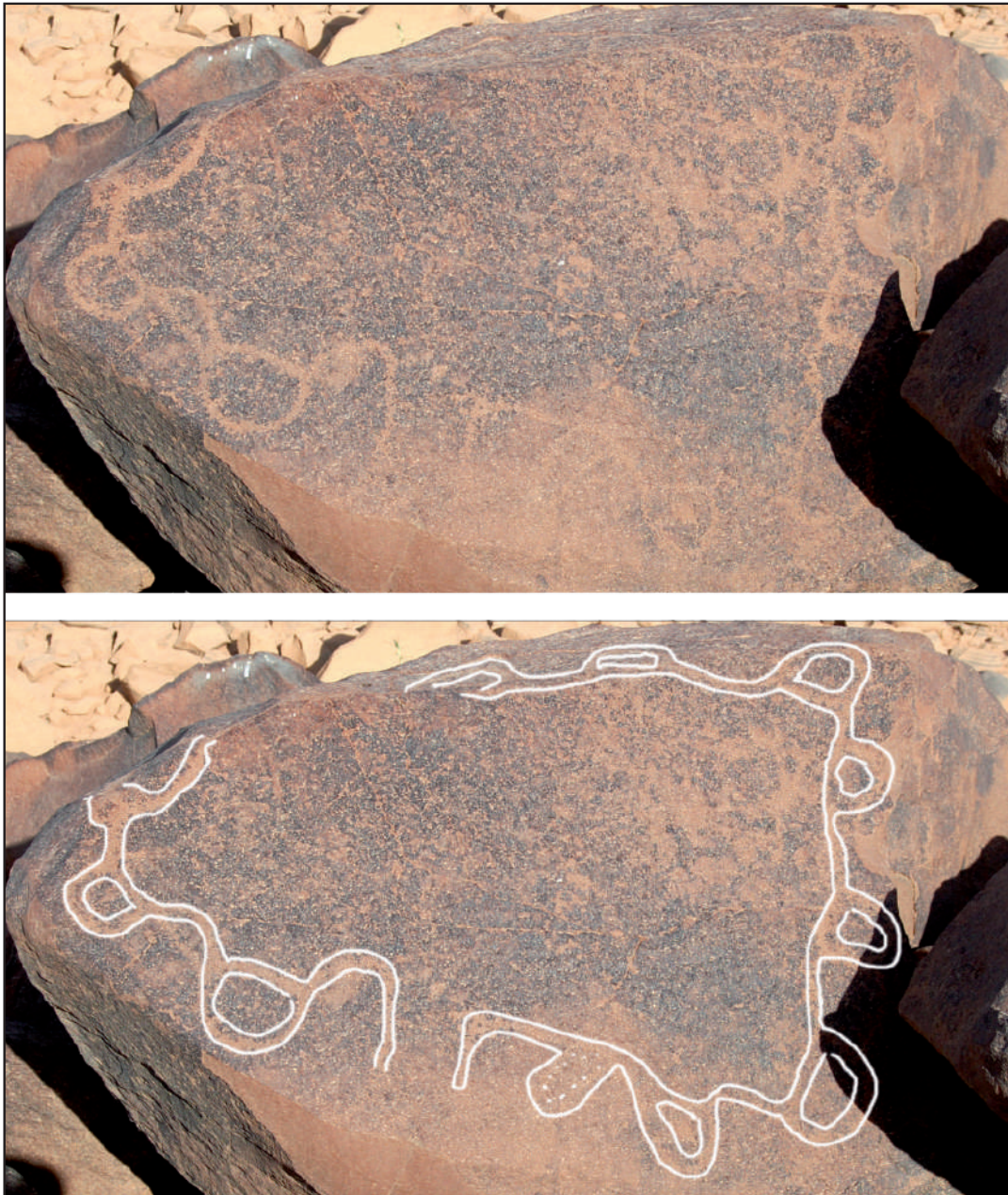
**Fig. 41.** Kites in the desert north of Azraq captured on satellite photos. The size of the trap in the upper kite is 230 m top to bottom and 150 m from the opening (at the right) to the opposite wall; in the lower picture, the trap of the upper kite is 120 x 170 m, and the one on the left is about 100 x 100 m.

**(Source: Google Earth)**

## Kites

Flying air mail and other correspondence and goods between Baghdad and Cairo in the 1920s, a British Royal Air Force pilot and photographer documented a series of enigmatic stone walls and corrals in eastern Jordan, noting one particular repeated pattern that consisted of pairs of long, low,

straight walls that ran for up to a kilometer or more converging towards a broad semi-closed trap built of stone (Maitland 1927). The configuration of the walls and trap was termed a “kite” because from the air “one is reminded of a small boy’s kite – a more or less hexagonal head with the string and tail springing out from it” (Rees 1929: 395).



**Fig. 42.** A kite from Gallery 1, Wisad Pools. The pecked outline has been enhanced by Photoshop in the lower part.  
The opening to the kite is at bottom center  
**(Photo: G. Rollefson)**



**Fig. 43.** A kite from Gallery 1, Wisad Pools; the opening (perhaps partially blocked with stones) is at bottom left  
**(Photo: G. Rollefson)**



**Fig. 44.** Another kite from Gallery 1, Wisad Pools, with an opening at the top of the figure. An animal is evidently portrayed inside the kite near the center  
**(Photo: G. Rollefson)**

Kites were used for hunting steppe/desert mammals, especially gazelle and onager, from at least as early as the 8th millennium BC (Betts 1987), and hundreds have been located in the Black Desert area of southern Syria, Jordan, and Saudi Arabia (Helms and Betts 1987: figs. 2-3 and 17). The openings are all oriented to the southeast, away from the prevailing wind that blows almost constantly from the northwest. Panicked by the hunters who approach them from downwind (i.e., from the SE), animals race in the opposite direction, veering along the walls that lead into the trap. Around the trap wall is a series of small circular “hides” from which hunters could dispatch their prey with arrows or spears (Fig. 41).

Attention to kites as elements of rock art has only recently come to archaeologists’ attention (e.g. Betts and Helms 1986; van Berg et al. 2004). It is not clear why kite images were pecked into basalt: were they used for

instruction in kite construction? for training in how kites were to be used? for recounting past successes? Or for good luck to ensure future success? At Wisad Pools, more than a dozen kite images have been found clustered in two “galleries” near the pools themselves, and it seems that this number of recreations indicates that they might represent a certain degree of boasting or thanksgiving.

(Figs. 42 and 43) are representative of the kite images found at Wisad Pools: the kites tend to cover the entire upper surface of basalt boulders, even spilling across the edges to the sides of the stone. Using all of the space contrasts to areas used up by animal or human figures, which are often miniatures compared to the surface area. The kite openings for both of these figures are at the bottom of the pictures. (Fig. 44) is another example, except in this case someone appears to have pecked in a small animal near the middle of the interior.

## Discussion

**Dating.** Determining the chronology of archaeological phenomena is inherent to the discipline, but dating rock art is fraught with often insurmountable problems (Betts 2001a), although sometimes directly associated linguistic inscriptions can provide general ages if the degree of patination of the figures and letters are comparable.

Stylistic dissimilarity in the rendering of animal images varies considerably, and it is likely this is a reflection of cultural/temporal variability to some extent (e.g. Anati 1968a-b; 1972; 1974; Nayeem 2000: Table 2). Even so, there is probably a great deal of variability from individual artist to individual artist during the same period, so that seriation of rock art examples is a very tentative process. Certainly, dates based on style alone can be very misleading, as examples of ibex/oryx renditions on Nabataean walls at Petra (Rollefson, personal observation) and Qusayr Amra testify (Betts 2001b). In fact, Betts notes that the same “styles” can be independently re-invented thousands of years after an earlier expression disappeared (Betts 2001b: 100).

Based on fundamental archaeological principles, Betts has been able to demonstrate that rock art in Jordan goes back to the 8th millennium BC (Betts 1987), but it is a rare case that stratigraphy plays a role in assigning ages to rock art. As mentioned earlier, the appearance of certain domesticated animals can result in a *terminus post quem*, but even for camels and horses this leaves a long period of uncertainty, spanning several millennia. The correlation of Pre-Pottery Neolithic hunting camps at Abu Masiyad al-Gharbi and ash-Sharqi (Betts 1998a: 37) and the longer-term settlement at nearby Dhuweila (Betts 1998b: 205) with kite construction in the desert east of Azraq indicates that kite rock art could be as early as the 8th millennium BC, but there is no way at present of determining if any kite images are that old.



## Presence/Absence of species

While the inventory of animal species is not impoverished in the eastern *badiyah*, there remains the question of why other species were ignored by the artists. Birds, for example, were probably important to both hunters and pastoralists from prehistoric through recent times, yet ducks, geese, owls, and other migrating species are not present, even at Wisad Pools, where seasonal migrations may have been impressive.

Gazelle bones dominate archaeological hunting camps throughout the *badiyah*, and while some of the gazelle rock art may have been mistakenly identified as ibex, there is little reason to think that artists would not have been able to make sufficient distinctions in their work; instead, the rarity of gazelle in the eastern *badiyah* rock art may be due to the same reason that goats and sheep were rarely the subject of figurine production in Neolithic times: “familiarity breeds contempt” might be a universal human characteristic when it comes to portraying animals (cf. Rollefson et al. 1992: 465). Notably, domestic sheep and goats appear to be almost taboo objects for rock art in the post-Neolithic period too.

While lions, hyenas, and wolves may have been drawn to express awe at the dangers these animals posed, it is interesting to note that other dangerous creatures are missing from the artistic inventory: scorpions and snakes, for example. Reptiles – especially lizards, including the enormous desert monitor (*Varanus griseus*) and the hefty dabb (the latter, *Uromastyx aegyptia microlepis*, reportedly used for food by modern Bedouin) – seem conspicuously absent.

Popular impressions of the desert – particularly for those people who live in urban, agricultural, and mesic habitats – often entail endless vistas of sandy and rocky terrain, where life is brutal, under constant threat, and often short for humans unfortunate enough to wind up in such inhospitable surroundings. While conditions in steppes and deserts certainly do present challenges that are exclusive to these environments, it is through the evidence left behind by artists and scribes that we can see what opportunities were also available in such arid regions.

**Whether the images and writing involve symbolic meaning, or if they simply represent the idle expressions of individuals who had a lot of time on their hands, rock art and inscriptions provide some narrative to the otherwise silent past of hunting and pastoral peoples who left little else in the way of material culture for us archaeologists to ponder. Details (or the lack of them), skills (or their absence), humor (or not) included in the rock art provides the broad spectrum of human individuality in the reportage of what people experienced. Rock art, especially, helps to animate and populate that “lifeless land” so many urban societies fear.**

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