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## SERIAL NOMINATION OF

Jabal Umm Sinman, Jubbah  
and

Jabal al-Manjor / Jabal Raat, Shuwaymis

Submitted by the  
Saudi Commission for Tourism and Antiquities  
as a proposal for inclusion in the  
UNESCO World Heritage List as a Serial Nomination  
2013 / 2014 AD - 1434 / 1435AH





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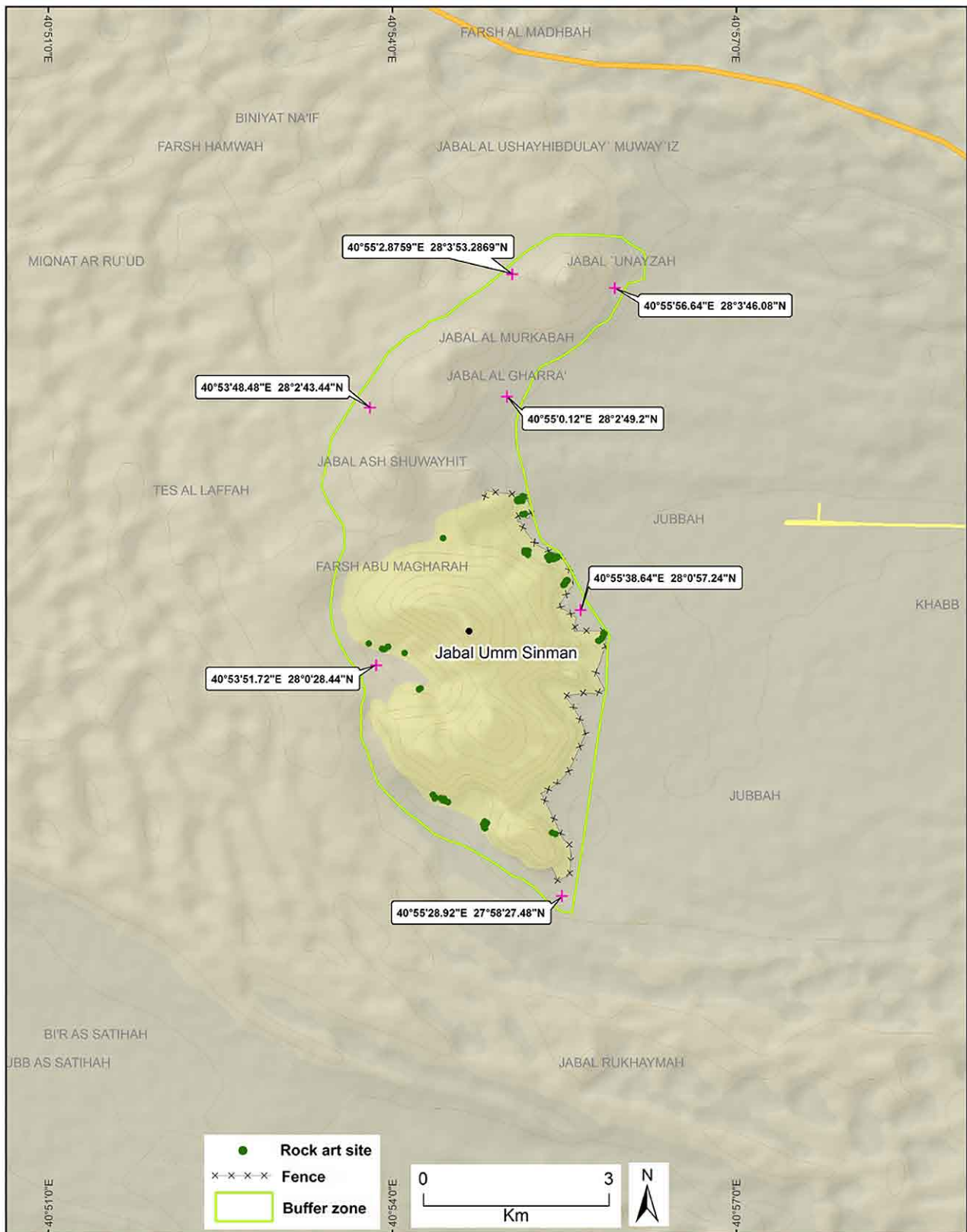
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## Executive Summary

<b>State Party</b>	Kingdom of Saudi Arabia
<b>State, Province or Region</b>	Northern Province, Hail Region
<b>Name of Property</b>	Rock art in the Hail Region of Saudi Arabia
<b>Serial properties</b>	Serial nomination of two properties: 1. Rock art at Jabal Umm Sinman, Jubbah and 2. Rock art at Jabal al-Manjor and Jabal Raat, Wadi al-Mukhayet, Shuwaymis
<b>Geographical coordinates to the nearest second</b>	1. Jabal Umm Sinman, Jubbah: 28° 00' 33" N, 40° 55' 44" E 2. Jabal al-Manjor and Jabal Raat at Shuwaymis: 26° 09' 13" N, 39° 53' 48" E
<b>Textual description of the boundaries of the nominated properties</b>	<p>1. Jabal Umm Sinman, Jubbah, 90 km northwest of Hail, is bounded in the west, north and south by desert sands and in the east by a security fence that borders the town of Jubbah. The buffer zone is bounded on the east by the westernmost north-south road of Jubbah, from its northern end to east of Jabal 'Unayzah, then skirting this hill to its west and trending southwesterly to include Jabals al-Murkabah, al-Gharra and Ash Shuwayhit, then south to the westernmost limit of Umm Sinman, skirting the mountain to its southernmost extent, from there returning to the westernmost road of Jubbah.</p> <p>2. Jabal al-Manjor and Jabal Raat are located on the Wadi al-Mukhayet, about 40 km west of Shuwaymis, situated about 250 km south of Hail. Both sites are bounded by security fences along the foot of the escarpments enclosing the rock art sites, and by the margins of the plateau above, but including ruins of ancient stone structures. The nominated core zone includes both sites within a parallelogram-shaped area. The surrounding buffer zone boundary proceeds from the end of the access road and the interpretation centre west across the width of Wadi al-Mukhayet, and from there follows the line of the demarcation poles (green line), measuring about 4 km north-south and over 3 km east-west.</p>

**Maps of the nominated properties, showing boundaries of core zones and and buffer zones:**



Jubbah core area (yellow) and buffer zone (within green line).





Shuwaymis core area (green) and buffer zone (yellow).

Criteria under which property is nominated	(i), (ii), (iii) and (v)
Statement of Outstanding Universal Value:  Brief synthesis	<p><b>a) Brief synthesis</b></p> <p>The outstanding universal values embodied in the rock art of Jabal Umm Sinman and Jabal al-Manjor/Raat are the high quality of the petroglyphs (engravings) that display distinctively different rock art traditions over the last 10,000 years and reflect major economic and cultural changes, and the adjustments that people made to climate change in a region that has always been a bridge between Africa and the continents beyond.</p> <p>Situated at the geographical nexus between Africa and Eurasia, Saudi Arabia has long served as a corridor through which people moved, exchanging technological innovations, trade goods, cultural values and beliefs. The exceptionally abundant and well-preserved petroglyphs on rocky outcrops in what is now a sandy desert record some of these major events in human history against a backdrop of climatic change.</p> <p>The oldest rock art tradition evident at both of the properties in the serial nomination is one of the world's largest and most magnificent surviving examples of early Neolithic petroglyphs. It includes animals such as the ibex, which was revered by early Neolithic people who depicted the horns in exaggerated form. This artistic device and the associated bold representations of people herald the monumental arts of later civilizations of the Middle East. Neolithic stone artefacts were left behind at encampments near the shores of palaeolakes more than 6000 years ago.</p> <p>As cattle and horses were domesticated, they were brought to the region and images of them were added to the art corpus. With increased desiccation and the drying up of lakes after 3000 years ago, camels became essential to the economy of the ancestors of the Bedouin and are illustrated in abundance alongside Thamudic and Arabic script. Depictions of weapons of war suggest that this was a contested landscape. Graves and stone structures within the buffer zones are further testimony to the rich history of the region and have great potential for further research in the region where some of the world's major religions and writing systems evolved.</p>
Statement of Outstanding Universal Value:  Justification	<p><b>b) Justification for criteria under which the Properties are nominated</b></p> <p>Criterion (i): The exceptionally large number of petroglyphs created by using a range of techniques with simple stone hammers, against a background of gradual environmental deterioration, are visually stunning expressions of the human creative genius by world standards, comparable to the messages left by doomed civilizations in Mesoamerica or on Easter Island. In that sense alone they are of highest outstanding universal value.</p> <p>Criterion (ii): "To exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in ... monumental arts", applies to Jubbah and Shuwaymis, where certainly more than 6000 years of continuous human occupation is archived in both rock art and inscriptions.</p> <p>Criterion (iii): At Jubbah we can follow the battle of past societies against the environmental catastrophe they experienced and adapted to, in a truly exceptional example of such a situation where the petroglyphs record the nature of the changes and the stone artefacts show where people lived in relation to the rock art and to the lake as it gradually dried up. At Shuwaymis, by contrast, the petroglyphs are all that remains of the testimony of a society that vanished, leaving behind a pristine record of its existence that is of a magnitude rarely encountered elsewhere in the world.</p> <p>Criterion (v): Description as a traditional human settlement or human interaction with a vulnerable environment "under the impact of irreversible change" seems to have been formulated specifically for the Saudi site complexes. It is hard to think of alternative, similarly comprehensive records of civilizations facing environmental oblivion, anywhere in the world, that have left such brilliant testimony of their genius. The two properties nominated literally exemplify this criterion.</p>

<p>Statement of Outstanding Universal Value:</p> <p>Integrity</p>	<p><b>c) Statement of Integrity</b></p> <p>The boundary of the core area of Jabal Umm Sinman is designed to conserve the visual integrity of the property as a landscape that encompasses 14 clusters of petroglyphs all around the lowest slopes of the mountain, and ends where the rocky edges of the mountain meet the surrounding desert sands. The buffer zone extends northwards to include several smaller hills with fewer petroglyphs to protect them and to emphasise the integrity of the higher density of rock art in the core area.</p> <p>The core area of Jabal al-Manjor and Jabal Raat serves the same purpose of visual integrity in the landscape with a total of 18 rock art clusters. It additionally includes the sandy valley between the two mountains to emphasise the visual connections between the palaeolake that once existed there and the mountain slopes where the petroglyphs were made. The buffer zone includes the neighbouring mountain to the north where additional habitation sites might be discovered in future.</p> <p>In both cases, about 8 km of steel fencing with locked access gates prevents uncontrolled human access to sections of the core area in order to conserve the integrity of the properties. Both the Jubbah and Shuwaymis properties have thus been spared any adverse effects of development or neglect, and continue to retain their integrity within the landscape.</p> <p>All elements necessary to express the OUVs of the two properties, namely numerous well-preserved petroglyphs, identifiably different rock art traditions over the period from hunting and gathering to animal domestication and writing, independent evidence for climatic change at nearby palaeolake deposits, and evidence for human interaction in a vulnerable environment, are amply represented at the Hail properties, and both core zones are of adequate size to ensure the complete representation of the features that convey the OUVs.</p>
<p>Statement of Outstanding Universal Value:</p> <p>Authenticity</p>	<p><b>d) Statement of Authenticity</b></p> <p>The petroglyphs at both properties have retained their original location, setting, materials, form and design at the foot of the mountain slopes in the desert, but they no longer function within a cultural tradition. The petroglyphs as well as Thamudic and Arabic inscriptions that have been added within the last three thousand years hint at intangible heritage that contributes to the spirit and feeling of the petroglyphs and that is still evident in their unspoiled setting.</p> <p>As no vandalism or illegal entry has been possible in the last few decades, and there is no evidence of reconstruction or recent modification of any of the rock art, deterioration processes are entirely limited to the effects of natural erosion. The causes of deterioration have been mostly meteoric water, wind and geological weathering, which are inevitable and have so far had limited effect on the petroglyphs, considering their age. The clearly different phases of weathering in fact underline the authenticity of the rock art corpus as they would be impossible to replicate. Although there is evidence on the lower slopes of Jabal Raat that some rocks with petroglyphs on them have been displaced since the petroglyphs were first made, this was undoubtedly a natural occurrence and there is no need to doubt the authenticity of the rock art. Dating of a series of key motifs by colorimetric sequencing of patina and other direct dating methods supports the age of the rock art estimated from independent palaeoenvironmental, archaeological and historical research.</p>

<p>Statement of Outstanding Universal Value:</p> <p>Management</p>	<p><b>e) Requirements for protection and management</b></p> <p>Both Jabal Umm Sinman at Jubbah and Manjor and Raat at Shuwaymis are well managed within the legal protection system provided by the Department of Antiquities and Museums. It is proposed to extend the management and protection of the sites by preparing for risks caused by increased visitation; continuing the constructive collaboration with the key stakeholders, the local municipalities; improving visitor facilities and infrastructure; and the improvement of staff expertise. Of particular importance is the establishment of a comprehensive monitoring system of key indicators measuring the state of conservation of the sites, especially in terms of the effects of increased visitation and natural deterioration.</p> <p>The Management Plan submitted with this nomination sets out the general parameters of managing the properties, but it will remain flexible to accommodate any new requirements deriving from the findings of the monitoring program.</p> <p>The managing authority, the Saudi Commission for Tourism and Antiquities, possesses the required human and financial resources to continue managing these monuments most effectively. It has at its disposal adequate legislative means, the political will and support to discharge its duties to the best standards, and a long-term commitment to the protection and preservation of properties that are entirely under its executive control. The administrative structures in the Kingdom of Saudi Arabia are highly centralized and effective, and the commitment of the SCTA, representing the State Party, to the long-term protection, preservation and effective management of the nominated properties is beyond question.</p>
<p>Name and contact information of official local institution / agency</p>	<p>Organization: Saudi Commission for Tourism and Antiquities  Address: P.O. Box 3734, Riyadh 11481  Tel: 966 1 403 6637  Mobile: 966 50 3439301  Fax: 966 1 403 6952  E-mail: OmarJ@scta.gov.sa  Web address: <a href="http://www.scta.gov.sa/en/Pages/default.aspx">http://www.scta.gov.sa/en/Pages/default.aspx</a></p>



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# 1. IDENTIFICATION OF THE PROPERTIES

## 1.a Country

Kingdom of Saudi Arabia

## 1.b State, Province or Region

Hail Region

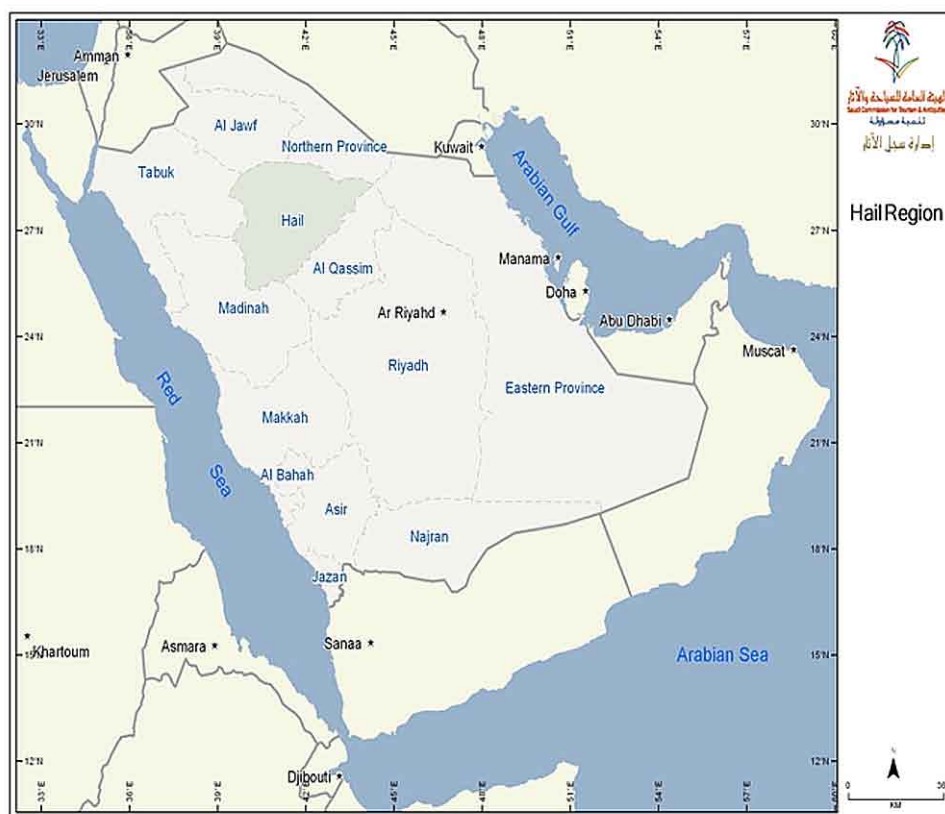
## 1.c Name of property

Rock Art in the Hail Region of Saudi Arabia

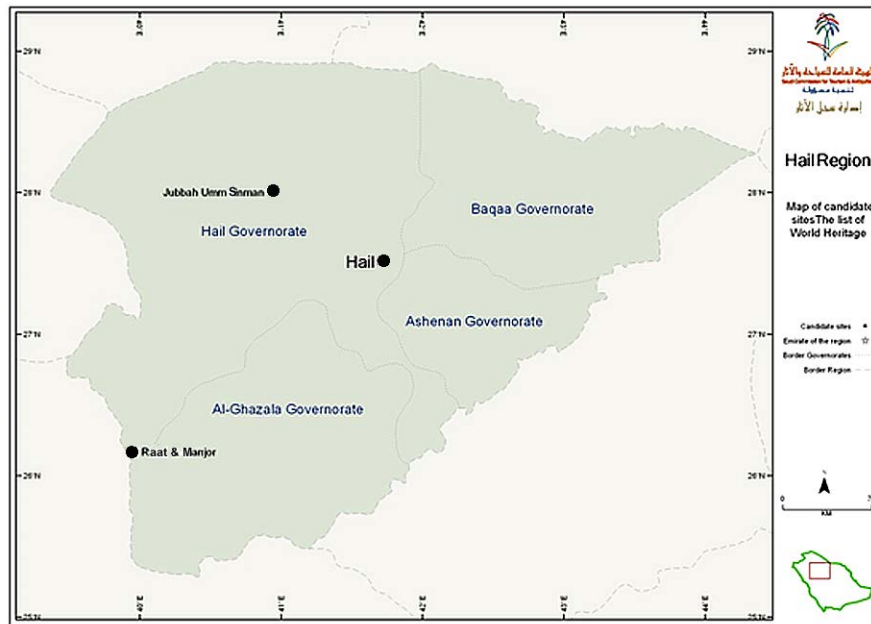
## 1.d Geographical coordinates to the nearest second

Id n°	Name of the component part	Region(s) / District(s)	Coordinates of the Central Point	Area of Nominated component of the Property (ha)	Area of the Buffer Zone (ha)	Map N°
001	Jabal Umm Sinman	Hail	40°55'44.4"E 28°0'33.48"N	1783.9 ha	1951.0 ha	3, 4, 7
002	Jabal al-Manjor and Jabal Raat	Hail	39°53'48.12"E 26°9'13.68"N	259.9 ha	1658.5 ha	5, 6, 8, 9, 10
Total area (in hectares)				2043.8 ha	3609.5 ha	

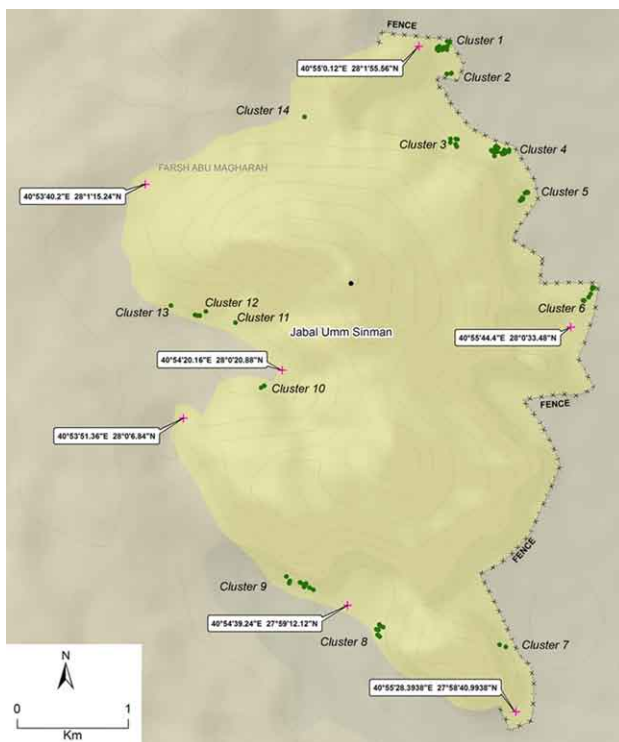
## 1.e Maps and plans, showing the boundaries of the nominated property and buffer zone



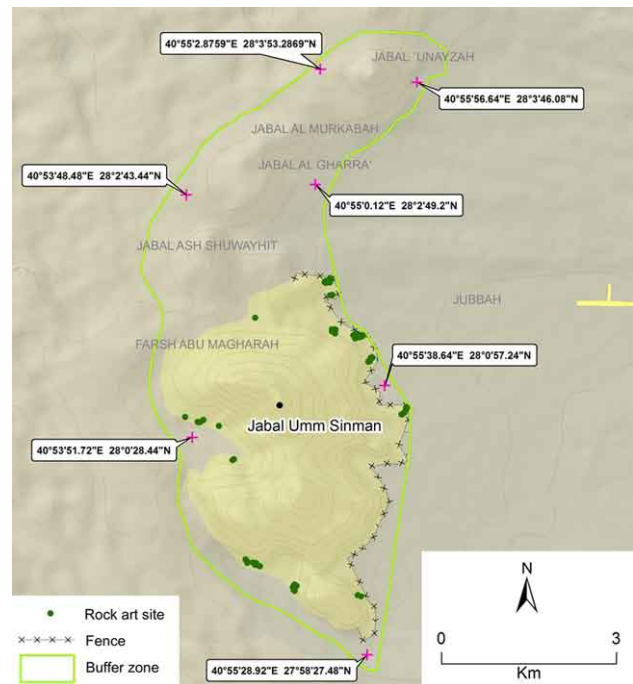
Map 1. The Kingdom of Saudi Arabia, showing Hail region.



Map 2. Locations of the two nominated properties within the Hail region.



Map 3. The nominated core area of Jabal Umm Sinman at Jubbah.



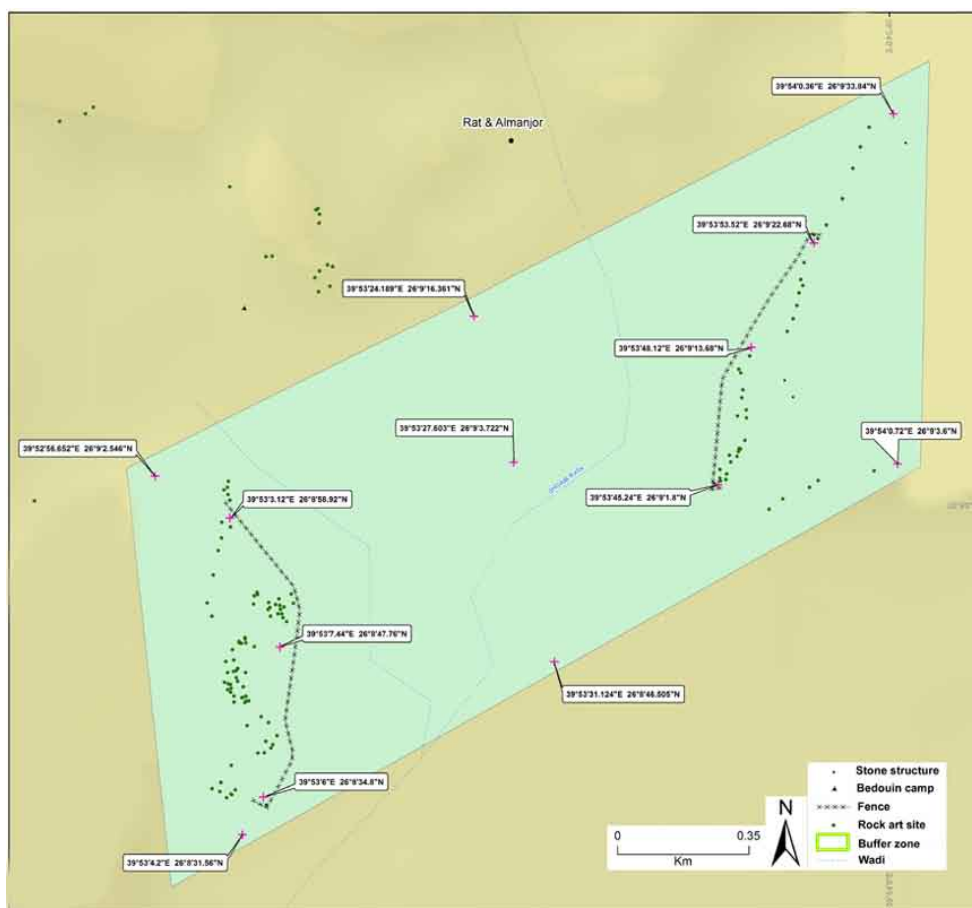
Map 4. The nominated buffer zone of Jabal Umm Sinman at Jubbah.

#### 1.f Area of nominated properties (ha) and proposed buffer zones (ha)

Areas of nominated properties: 2043.8 ha

Areas of buffer zones: 3609.5 ha

Total: 5653.3 ha



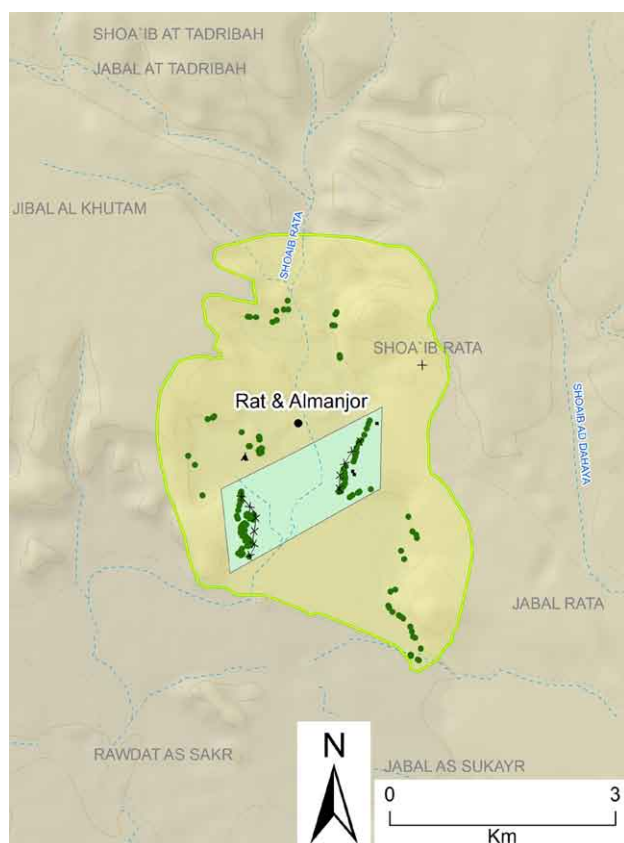
Map 5 (above). The nominated core area (green) of Jabals al-Manjor (right) and Raat (left) at Shuwaymis.

## 2. DESCRIPTION

This serial nomination of the 'Rock Art in the Hail Region of Saudi Arabia' comprises two properties, one of which is situated in the Great Nafud Desert, the other about 300 km to the southwest of Hail in the volcanic plains of Harrat Khaybar, north of Al Madinah. At the latter location, two escarpments richly decorated with rock art occur in close vicinity, sharing a core zone and a buffer zone. The rock art on each of the three mountains or *jabals* has distinctive features, but together they incorporate all the main stylistic elements that make the combined rock art of the wider Hail Region of outstanding universal value. The properties are among the biggest and richest rock art complexes not only in Saudi Arabia, but in the Arabian Peninsula and the Middle East generally. They stand among the most fascinating and largest rock art sites of the world, and could be compared with the world-famous rock art sites of Australia, France, India, Namibia, South Africa and the Saharan Desert.

### 2.a Description of properties

The Great Nafud Desert in northern Saudi Arabia covers an area of about 68,000 square kilometres stretching



Map 6. The nominated buffer zone (yellow) of Jabals al-Manjor and Raat at Shuwaymis.



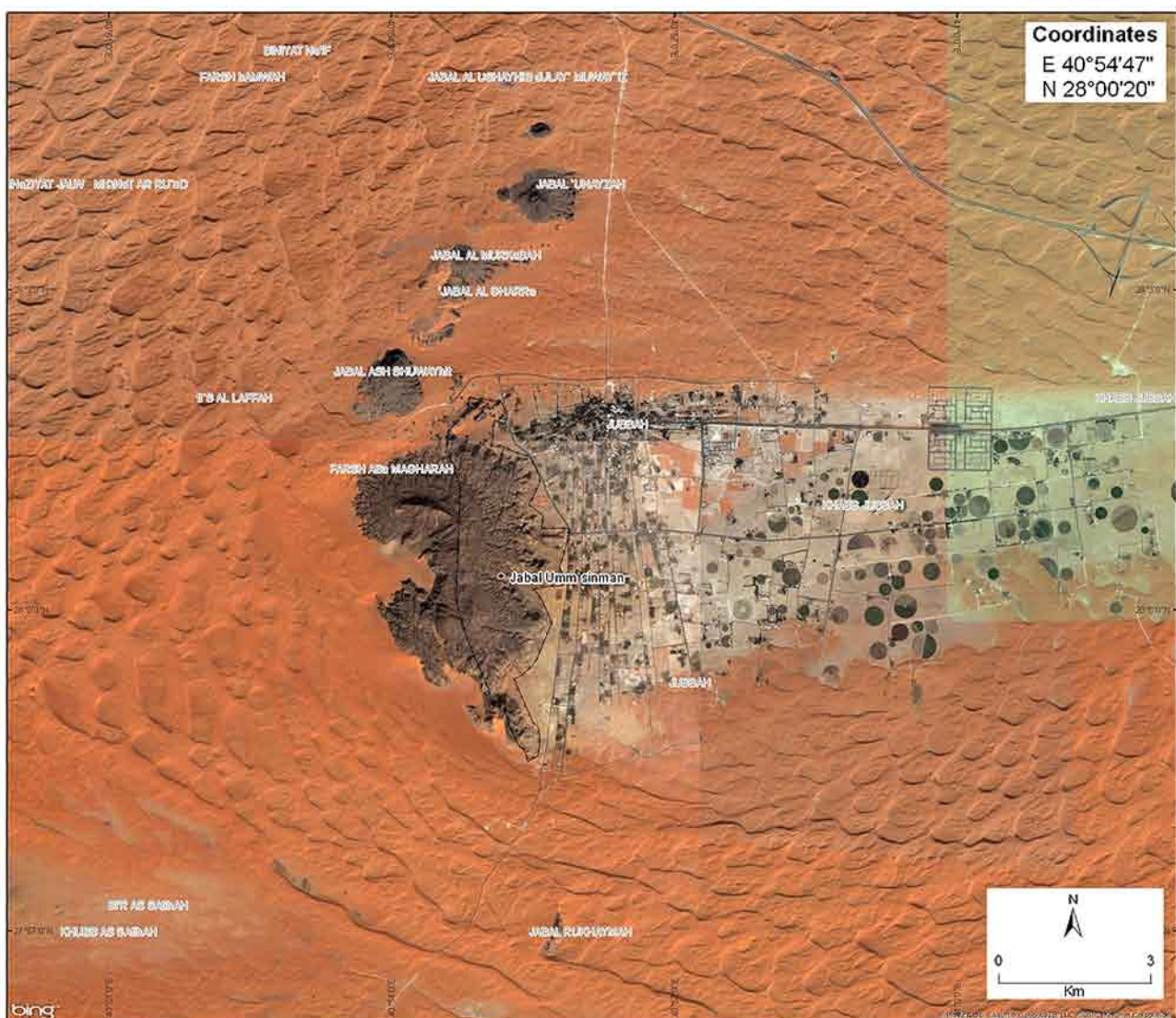
between 300 to 400 km east-west and 125 to 250 km north-south. The town of Jubbah is located inside the southern border of the sand sea at about 90 km northwest of the city of Hail in northern Saudi Arabia. The Jubbah oasis is located at 28° 00' 20" N longitude and 40° 54' 47" E latitude, and at 820 m above sea level. The site consists of several hills and mountains and a dry lake-bed which was active until 6000 years before present (McClure 1976; Garrard and Harvey 1977). The sand of the Nafud has covered most of the rocks and hill bases and if there were any remains of ancient settlements near the lake, they are now buried under the prevailing sand dunes that are up to 60 m high in the area.

### 2.a.i Jabal Umm Sinman, Jubbah

In the southern part of Great Nafud Desert, surrounded by its golden sands, lies a small green oasis, Jubbah, which was the centre of an advanced culture during the very beginnings of Arab civilization. Overlooking the freshwater lake that then existed was the hill range of Umm Sinman,

providing shelter and water to both people and animals. Here on these hills, the ancestors of present Arabs left the marks of their presence, their religions, social, cultural, intellectual and philosophical perspectives of their beliefs about life and death, metaphysical and cosmological ideologies.

The former freshwater lake of Jubbah was one of several such water bodies owing their existence to a series of sandstone inselbergs, occurring mostly in a north-south alignment. Lakes have in the geological past formed on the lee sides, the east, of some of these rock stacks dominating the landscape. The largest of these mountains is Jabal Umm Sinman, rising to a height of 1264 m asl., or almost 450 m above the surrounding desert. The palaeolake on its lee side was up to 20 km long and 5 km wide at its peak. The present town of Jubbah has been established on its sediments (Map 7). During the region's desertification, beginning in mid-Holocene times, the oasis of Jubbah provided the only substantial source of water within the desert, facilitating its continuing human occupation up to the present and the gradual adaptation of the population



Map 7. Satellite image of Jabal Umm Sinman and the oasis of Jubbah.



to the significant environmental changes (McCorriston and Martin 2009). These changes are distinctly expressed in the numerous petroglyph panels and rock inscriptions, the greatest concentrations of which occur in the lower rock exposures of the eastern flanks of Jabal Umm Sinman.

#### 2.a.ii *Jabal al-Manjor and Jabal Raat, Shuwaymis*

Jabals al-Manjor and Raat are rock escarpments of a now sand-covered wadi that is thought to have been a broad valley with flowing water during the early Holocene. Both Jabal al-Manjor and Raat contain a large number of human and animal figures, and other hills and outcrops within the buffer zone feature smaller concentrations. These sandstone exposures occur in a region that has seen numerous volcanic eruptions and lava flows in recent geological history.

The large number of petroglyphs and inscriptions at these site complexes has been attributed to almost 10,000 years of human history. Although the bulk of this vast corpus of petroglyphs is of a single cultural period of human history, preceding and subsequent rock art traditions have been

identified and dated. As the aquifer subsided, probably around mid-Holocene times, the formerly permanent human population became increasingly transient, but the sites were still visited in recent millennia as indicated by the rock art. The intensive and comprehensive survey of the Jabal al-Manjor and Raat complexes since their recent re-discovery resulted in the location of hundreds of rock art panels, several stone structures and typical stone objects of the Neolithic era (Map 8).

#### 2.a.iii *Environmental setting of Jubbah and Shuwaymis*

Jabal Umm Sinman is located in a fully arid environment, the great Nafud Desert surrounding the mountain on three sides while the fourth side (east) had until the relatively recent past (c. 6000 years BP) been dominated by a freshwater lake. The desert floor beneath the dunes of the Nafud is characterized by a network of relict lake and river systems (Schultz and Whitney 1986), some of which have yielded Pleistocene fauna (Thomas et al. 1998). The lacustrine and other fluvial and aeolian deposits in the Jubbah Basin were studied and analyzed by Garrard et al. in 1980–81, who defined seven major sedimentary units. Deposit 3 was found to consist of a thick layer of black colour suggesting a high organic content. It contained a quantity of plant remains that indicated wet conditions. It was  $^{14}\text{C}$ -dated to  $6685 \pm 50$  BP (Garrard and Harvey 1977). Modern water-wells in Jubbah and alongside Jabal Umm Sinman indicate that stratified sediments extend to a depth of at least 30 m, and include inter-digitated deposits of sands and silts and signs of a fluctuating water table. These deposits mostly underlay a radiocarbon age of  $25,630 \pm 430$  BP (Garrard et al. 1981), indicating ages for the deposits older than MIS 3, though caution is warranted given the sample was taken some time ago, and is a bulk age from humid soils (Petraglia et al. 2011, 2012; Groucutt and Petraglia 2012; cf. Engels et al. 2006). More recent studies have suggested that lake formation occurred during several humid phases, such as Marine Isotope Stage (MIS) 5e (c. 125 ka BP, 125,000 years), MIS 5c (c. 100 ka BP) and the early Holocene (c. 9–6 ka BP), also as smaller water bodies situated within interdunal depressions and at the base of jabals (e.g. Rosenberg et al. 2011; Crassard et al. in press). This is confirmed by the Middle Palaeolithic and perhaps even Lower Palaeolithic occupation evidence from the region.

Jubbah lies on an ancient caravan route, which has given rise to many thousands of rock inscriptions, from Thamudic to Islamic, accompanied by many hundreds of camel images



Map 8. Satellite view of the Jabals al-Manjor and Raat and their environment: 1 – interpretation centre and southernmost extent of the buffer zone; 2 – recent Islamic cemetery.

and tribal symbols of recent millennia (Winnet and Reed 1979; Winkler 1952; Al-Theeb 1999; Al-Dowsary 2009; Khan 2000a, 2007).

The palaeoenvironmental conditions of the Shuwaymis sites have received far less attention so far, essentially because of their very recent discovery. The extensive cliffs facing Wadi al-Mukhayet and its deep tributary canyons indicate significant erosion by flowing water in the distant past, but traces of fluvial sediments remain elusive and are perhaps all buried by sand. Although most of the region's extensive volcanic activity seems to be of the Early Pleistocene, there have also been some very recent, Holocene lava flows, and a possibility exists that the collapse and displacement of many petroglyph-bearing blocks at the Shuwaymis sites may have been exacerbated by volcanic effects.

The depositional sequence of Jubbah lake is very similar to that described by McClure (1976) from Lake Mundafin at the western end of the al-Rub' al-Khali and from other localities in the Empty Quarter of the country's south. McClure found evidence of two main generations of lake deposits, the earlier dated between 36,000 and 17,000 years BP, with a concentration of dates between 30,000 and 21,000 BP, and the later between 9000 and 6000 years BP. At the rock art site Ain Jamal in the Kingdom's far south the onset of the final phase of surface water has been dated to about 3500 years ago by optically stimulated luminescence analysis (Liritzis et al. 2013).

To the north-west of Jubbah in the Levant, further lacustrine evidence has been found of increased precipitation during early periods. In the al-Jafr Basin in southern Jordan 25 m of lacustrine limestone and marl were deposited in the mid-glacial and the shorelines are littered with Levallois-Mousterian artefacts. A  $^{14}\text{C}$  date of 26,400 years BP was obtained from the upper part of these deposits. Evidence for mid-glacial lakes has also come from the Damascus and Palmyra Basins dating from the same period.

A similar chronology was also found in the lake basins of northern Africa (Arz et al. 2003). Street and Grove noted that the lake levels were high in this area in the period prior to 15,000 BP, and between 8000 and 9000 years BP. The lake basin areas disappeared due to increase in temperatures and evaporation. Thus human activities and the production of rock art of similar periods can be seen in these regions.

#### 2.a.iv Climate and hydrology

Rainfall is very low in the present days in Jubbah and the records for 1966–1974 suggest a highly variable, but average rainfall of 103.2 mm, a mean January temperature of 10.1 degrees centigrade and a mean August temperature of 31.8 degrees centigrade. The temperature, however, drops below zero in winters and can rise above 45 degrees in summer. Water can be found lying in small silt depressions or clay pans in the dunes area for a few days following heavier

rainfall, but regular supply of water in the Jubbah area has to be pumped from 50–75 m below ground level at the present time. Before the start of artesian drilling the water table may have been considerably higher and at the time of Blunt's visit in January 1879 and Euting's visit in October 1883, water was being obtained from hand-dug wells at 12–23 m below ground level (Khan 1985, 2000a, 2011). Just as the annual rainfall is very low in Jubbah, similar conditions pertain in Shuwaymis, of less than 100 mm per annum. The temperature regime is also similar. The high mountain summits at Jubbah manage to harvest enough rainwater to recharge their aquifer that provides enough water to the local inhabitants. In 2013 the citizens of Jubbah were so concerned about water flow from the mountain slopes into their town that they constructed a diversionary dam of several kilometres length immediately inside the buffer zone's eastern border.

The sand dunes absorb water easily and retain it below the evaporation zone for deep-rooted plants. Consequently, the Nafud is relatively rich in perennial forage and particularly in *ghada* bushes. There is also a lush growth of annuals after winter rain. Blunt noted tracks of hare (*Lepus capensis*) and oryx (*Oryx leucoryx*) in the central Nafud and Carruthers reported tracks of the latter and the ostrich (*Struthio camelus*) in the western Nafud in 1909. The local people have in their houses the horns of male and female goitered gazelle (*Gazella subgutturosa*) caught at Jabal Ghawata. The jabal may have supported ibex (*Capra ibex*) as do others in central Arabia and ibex have been reported from various places of the Nafud in the northern region (Kabwi et al. 1986, 1989).

The underground water around Jabal Umm Sinman is sweet and mineralized and is now used for agriculture, gardening and plantations. Jubbah village has several fruit gardens, palm trees and wheat and barley fields. The presence of underground and rain water at present, and in the form of a large active lake in the past, have allowed fauna and flora to develop. These combined factors have fostered human presence since the Palaeolithic era. Even after the climate of the region became drier, pastoral nomads have supported their life style using several perennial and seasonal springs and water bodies around Jabal Umm Sinman and its environs.

#### 2.a.v Geology and geomorphology

The sands of the Nafud have accumulated in arrow-shaped formations of up to 100 m depth pointing east in the direction of the Ad-Dhana sand belt which links it to the al-Rub' al-Khali or Empty Quarter in the south. The northern and southern parts of the sand sea are characterized by complex linear dune ridges which run eastward to the prevailing winds, whilst the western margin and central Nafud are composed of compound crescent-shaped dune ridges and pyramidal dunes are found in the south-eastern region.



Figure 1. Impressively shaped stacks and pillars created by weathering and erosion, Jabal Umm Sinman.

Jubbah lies in the south-central Nafud and the range of Jabal Umm Sinman, which contains the highest number of petroglyphs, is located at the western end of the palaeolake basin and rises to over 1200 m. At the eastern end of the basin a similar but smaller range known as Jabal Ghawata has impeded sand deposition in a further area of about 8 km east-west by 3 km north-south. Both ranges are thought to have bases of Saq sandstone and summits of Tabuk sandstone (Khan 1993a).

Similar lacustrine deposits were also noticed near the windward side of the dunes. In this case, the black sandy silt gave way at higher elevations in the dunes to what appeared to be slightly calcareous or cemented sand full of root and stem encrustations. Neolithic/ Chalcolithic occupation sites were frequently found on the surface of the latter, and it seems possible that the divide between black sandy silt and calcareous sand marks the borders of a marshy area. These marshy areas suggest increased humidity in the Jubbah area around 6685 years before present as well human presence at the same time.

Jabal Umm Sinman is a superlative example of a highly varied geological and desert landscape that is the result of the interplay between complex geological factors, both structural and lithological as well as climatic influence that have fluctuated considerably over the long period that it has taken the landscape and the hills to evolve and be shaped in awe-inspiring forms. The hills have been shaped primarily by weathering that is driven largely by high temperature differentials, erosion accomplished by the wind and occasional rainfall.

A geomorphological anomaly at Jubbah is the large integrated lake bed which is now dry but was active until 6000 years before the present. There have been times in the past when the climate was more humid and rainfall more plentiful. With the rise in temperatures, increased aridity and depletion of aquifers the lake dried up gradually and the hills

of and around Umm Sinman were eroded and developed various attractive forms and shapes. The hills are highly colourful and range from grey-pink to light-brown sandstones that are amenable to pecking and engraving.

The long-term weathering and erosion has resulted in the weakening of the sandstone rocks and creating distinctive morphologies and appearances. The run-off rainwater collecting around such hills developed springs and short-term water bodies that surrounded the southern, western and eastern area of Jabal Umm Sinman.

The vertical joints and columns produced by the processes of erosion, both by rain and wind, are one of the essential aesthetic elements of Jabal Umm Sinman and are characterized by pyramidal hill tops and hump-like summits. Thus

the mountain comprises spectacular towers of varying heights and width. Within this dramatic and highly symbolic landscape the distinctive hill tops give the area its unique character (Figure 1).

The geomorphology of Jabal al-Manjor and Jabal Raat also explains their present state. The boulders are of a relatively weathering-resistant facies formed as horizontal strata, supported by a distinctively argillaceous, more readily decomposing sandstone stratum. As the later deteriorated it could no longer support the rock mass above it, and large portions of the decorated upper layer broke off through gravity and rolled or slid a few metres, only to be engraved again in their new positions as they gradually made their way down the slopes. This process may have been exacerbated by volcanic activity.

#### 2.a.vi Archaeology of Jubbah and Shuwaymis

Evidence has been found of four major phases of human settlement at Jubbah. However, the only evidence for permanent occupation is from the latest phase. In the Nafud Desert, 'Mousterian' lithic assemblages were first reported from a factory/quarry site near the summit of Jabal Umm Sinman and localities on the Jubbah palaeolake margins and floor (Clark 1970; Garrard et al. 1981). Two typical Middle Palaeolithic (probably in the order of 90–40 ka old) sites containing Levallois-Mousterian stone artefacts were located during the Comprehensive Archaeological Survey. One of these sites was found on the very summit of Jabal Umm Sinman (site No. 201-26a), where a large number of worked and discarded stone objects scattered over the site suggests that it might have been a quarry or factory site exploiting the summit outcrop of hard ferruginous sandstone. The second site was found on a sandstone platform at the base of the north-eastern corner of the mountain (site No. 201-25a), and contained both local ferruginous sandstone and local quartzite artefacts. Middle Palaeolithic or Mousterian

implements were also found on the weathered surface of deposits (201-25b) just to the east of the previous site; a  $^{14}\text{C}$  date of  $25,630 \pm 430$  BP was obtained from a similar elevation, 100 m to the west. It is evident from the analysis of a well deposit that lacustrine conditions prevailed during the Middle Palaeolithic in the Jubbah area.

Petraglia et al. (2012) report the excavation of three roughly dated Middle Palaeolithic occupation sites near Jubbah: at the southern end of Umm Sinman (site JSM-1, with two weak Late Pleistocene OSL dates), at nearby Jabal Katefeh to the south (site JKF-1, at ~90–85 ka to ~50 ka), and at Jabal Qattar to the east of the palaeolake (site JQ-1, the occupation having been dated to ~75 ka BP; Petraglia et al. 2011). In 2013 the Palaeodeserts team also located several Middle Palaeolithic tool scatters near the southern peak of Umm Sinman (Petraglia and Alsharekh 2013). Moreover, its members have recently found the region's first Lower Palaeolithic evidence, in the form of an Acheulian handaxe at site AJHA R1 and several more bifaces at site QAN-1. Both sites are to the southwest of Jubbah but still within the Nafud (Petraglia and Alsharekh 2013).

Although evidence of human occupation in the Middle Palaeolithic period is thus commonly found at Jubbah, none of the rock art could possibly be attributed to this period. Either the petroglyphs of this period could not survive taphonomic processes or rock art was not produced by the Jubbah people at that time (Khan 2008, 2011).

Despite seemingly favourable environmental conditions during the Upper Palaeolithic period no evidence was found so far of settlement in Jubbah during this time. However, Neolithic sites are abundantly located in the area. Twelve sites of possible Neolithic date have been found, eight of them near the base of the windward side of sand dunes along the northern and southern borders of the basin (e.g. sites 201-25e-j and 201-27a-b). These were associated with evidence of a palaeo-soil and possible marshy conditions. The contents of these sites were described by Parr et al. (1978; cf. Ingraham et al. 1981) and included finely retouched, tanged arrowheads, bifacial points, blades, side and bi-face scrapers and disc cores, awls, tabular scrapers, large choppers and a little pottery. The tools were prepared on a variety of stone including chert, rhyolite, ferruginous sandstone and quartz.

Some of these sites are located near rock shelters and close to some rock art panels on the nearby rocks. However, in no case could any rock art be linked to them. The stone artefacts are said to be typical of pre-pottery Neolithic in Arabia (Parr 1977; Ingraham et al. 1981). Similar artefacts of pre-pottery Neolithic type have been reported from southern Jordan bordering Saudi Arabia and in the Levant and Palestine. Parallels to these artefacts have also been found in central and other parts of Saudi Arabia (Parr and Dayton 1970; Zarins et al. 1982; Khan 2000b, 2007, 2008).

No archaeological excavations have been carried out at

rock art sites so far, at both the Jubbah and the Shuwaymis properties. Since the sites are generally not relatable to stratified sediment deposits there are no real prospects of archaeological minimum dating of rock art at these sites. Indeed, the amount of archaeological research so far conducted at Shuwaymis is minimal (Petraglia and Alsharekh 2013). Nevertheless, it is clear that this site complex offers a great number of opportunities for archaeological studies, especially of its range of stone structures. Four Middle Palaeolithic occupation sites have been reported about 40 km to the east of Wadi al-Mukhayet, in the vicinity of Shuwaymis village (Petraglia and Alsharekh 2013).

#### 2.a.vii Cairns and tombs

There is a general tendency in Saudi Arabia to find cairns and tombs on top of hills or on their slopes. The hill ranges of Jubbah, Jabal Unayza, Jabal Shouwaith and Jabal Umm Sinman contain stone structures which are usually cairns and circular tombs. Many of these burials are not very well preserved but the stone structures are still in adequate shape to convey their identity.

The tombs are usually located on the top of the hills or on their lower levels. On Jabal Unayza and Jabal Showiath at Jubbah the tombs are located on three levels, that is at the top of the hills, on the first and then on the second level. These tumuli are mostly circular in shape with rectangular or circular pits. In some cases tail-like structures are associated with these features. It is certain, due to the limited number of tombs located on these hills, that common people were not buried on hills, otherwise a much greater number of tombs should have been found on them (Khan 2005).

At Shuwaymis the cairns are located in Wadi al-Mukhayet and in the elevated areas besides the wadi at Jabal al-Manjor (Figure 2). These are circular or roughly square-shaped structures. Although it is as yet not possible to positively link them with any of the Shuwaymis rock art the alignment of several extensive stone structures along the margin of the plateau overlooking the dense concentration of petroglyph clusters at Jabal al-Manjor is suggestive of a connection between these structures and one of the rock art phases evident on the cliffs below them. Most particularly, the large central ruin, above petroglyph cluster 4, does not appear to be a burial monument, but has the appearance of a ritual centre of some kind. It is based on a square stone platform erected hard against the edge of the plateau. On this base a circular wall with a diameter of about 25 m surrounds a paved courtyard that has an opening facing away from the escarpment's edge. In its centre appears to have been a small structure and there are further stone features that seem indicative of specific purposes (Figure 3). The structure's minimum age is indicated by the presence of one elongate stone slab outside the circular wall, which seems to have fallen from the structure and on whose upper side are the petroglyphs of three 'camels' of limited patination. Safely





Figure 2. Major stone structure on the edge of the Jabal al-Manjor plateau, overlooking the densest petroglyph concentration. A second such structure is visible in the background, as is part of the protective fence at the base of the escarpment.

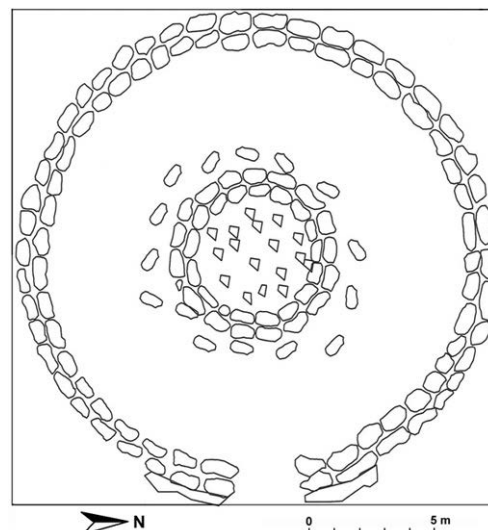


Figure 3. Plan view of the stone structure shown in Figure 2.

attributable to the last two millennia, this suggests a greater age of the structure, but as these stone structures are not known from the Neolithic (when stelae would be more typical) they are perhaps most likely of the Bronze Age. Although this is speculation it is confirmed by the observation of numerous relatively late petroglyphs at other stone structures at Wadi al-Mukhayet, for instance near the interpretation centre being constructed.

Three different types of tombs can be identified. Circular tombs for individual persons made with local stone slabs were arranged in a regular circular order, with central rectangular pits for the deceased's body. The second type is a circular structure in the middle associated with smaller circles, thus having additional compartments for the burial perhaps of the deceased's family members. In one such case (Jabal Showaith at Jubbah) a tail consisting of eleven small circles is included; in another case on Jabal Unayza a tail consisting of five circular structures is located. We may presume that each circular pile of stone represents a relative of the deceased. This assumption is based on the location of different numbers of circular structures with different graves.

The third type of stone structure consists of circular arrangements with small circular pits in the middle. It is not possible to bury humans in such small pits, thus these could be the graves of sacrificed animal remains as have been found in Bir Himma (Najran, southern Saudi Arabia), Darb al Feel and Dammam, where camel and ibex bones are located in circular pits of large circular burials.

Almost all the tombs at Jubbah and Shuwaymis were previously opened and nothing is preserved in them. Absence of any objects in these tombs has prevented their dating so far. However, in one case some fragments of human skulls were located and have been collected for

dating.

#### 2.a.viii Rock art of Jubbah

The study of rock art and associated artefacts and cultural finds in the Jubbah and Hail area suggest intensive human activities during the Neolithic period (c. 9000–5000 years before present). Frequent cattle figures are suggestive of a relatively cool and wet climate and grassy, perhaps savannah-type vegetation. These are essential conditions required for the survival of cattle, which cannot live in dry desert conditions (Khan 1991, 1999, 2007). These environmental conditions are confirmed by the analysis of the Jubbah Lake lacustrine deposits. Carbon dating of these deposits suggests a humid and cool climate around 6500–6000 years before present (Garrard et al. 1981). These results accord with the analysis of the Mundafin Lake in al-Rub' al-Khali (McClure 1976), and Masry's investigations (1974) in the Eastern Province.

The shift from humid and cool to dry desert conditions commenced around 6000 years before present (Garrard et al. 1981; Khan 2007), and in due course human activities at Jubbah were progressively curtailed. Jubbah Lake commenced to dry out and huge masses of sand began to accumulate, thus converting the green grassy region of the Nafud into a desert as the aquifer level fell. Pastoral and herder groups which had been attracted to Jubbah due to the availability of a permanent water body and natural rock shelters would have migrated elsewhere with their herds of domesticated cattle, sheep and goats.

The changes in the environment are reflected in the zoomorphic content of the rock art through time (Khan 1988a, 1996, 2000a). The fauna depicted at Jubbah includes presumed images of cattle, long-horned oxen, deer, gazelle, oryx, ibex, lion, dog, horse, donkey, ostrich and camel



Figure 4. Patinated equine figures at Jubbah, probably of the late Neolithic.



Figure 5. Apparently female human figure of a unique design, Jubbah, probably late Neolithic.

(Figure 4). While these have been ascribed to periods from Neolithic times to the Chalcolithic and Metal Ages, it is to be noted that tracks of the ostrich (*Struthio camelus*) and oryx, now extinct in all Arabia, were still observed in the western Nafud as late as 1909, and the goitered gazelle (*Gazella subgutturose*) still occurred in the most recent history (Khan 1985, 1988a, 1990b, 1993a).

After the Neolithic, characterized by fully patinated petroglyphs, there seems to have been a change in stylistic conventions, possibly to Chalcolithic and Bronze Age traditions. The relatively large-sized human and animal figures in semi-naturalistic style give way to more schematized and small-sized animal figures of the Chalcolithic period (Khan 1993a, 2007, 2011). The formation of the Jubbah oasis probably facilitated continuous occupation of the site, and its importance is perhaps underlined by the recent observation that 82.2% of the prehistoric rock art sites overlook palaeolakes (Jennings et al. 2013). There appears to be even an increase in human occupation and cultural activities in the Jubbah and Hail area during the Bronze and Iron Ages (between 3500–2500 years before present). The region's rock art is now dominated by hundreds and thousands of petroglyphs of camel, ibex, dogs and human figures (Khan 1991, 1993a, 2000a). This re-appearance of larger populations in the region of Jubbah and Hail indicates a change in climate and increase in humidity, which coincides with the geological and environmental results suggesting an increased humidity in the Bronze Age that has been

detected also in the south of the Kingdom. At the rock art site Ain Jamal near Najran, OSL dating of sandstone grains concealed by reprecipitated carbonate has shown that the most recent ponds of water at the site began forming only  $3580 \pm 250$  years BP (Liritzis et al. 2013). About 2000 camel figures are located at the site of Jubbah which may support the contention that Jubbah, also, witnessed an increase in humidity, and perhaps the dry lake of Jubbah was partially reactivated during the Bronze Age, thus attracting again both animals and humans. Similarly the sites of Janin, Milihiya and Yatib in the Hail area, with high concentrations of camel figures and Thamudic inscriptions, testify to the increased human activities during the same period (Bednarik and Khan 2002, 2005). The superimpositions and juxtapositions of figures clearly indicate different cultural activities and rock art of different periods, depicted one over the other on the same rocks.

The numbers of human (Figure 5) and animal figures recorded by the Department of Museums and Antiquities from 490 localities at Jabal Umm Sinman, in addition to ancient Arabian and Kufic inscriptions (Table 1).

However, more recent estimates place the total number of petroglyphs and rock inscriptions at about 15,000. As we have no archaeological excavations at the Jubbah Neolithic

Human figures	Cattle	Camel	Horse	Others	Total
626	80	1378	45	4073	6202
Thamudic and other inscriptions 3500					

Table 1. Early estimate of rock art motif and inscription numbers at Jabal Umm Sinman, Jubbah.



Site	Dating	Range (BP)	Approx. age (BP)
Um Asba'a	Calibration	Known age 1120 BP	
Al Usayla	'Ibex'	3180 – 2120	E2680 + 500 / - 560
Umm Sinman	Calibration	Known age 1150 to 1200 BP	
	Anthropomorph 1 Anthropomorph 2	5650 – 4240 7070 – 5650	E4890 + 760 / - 650 E5877 + 1190 / - 220
Jabal Ash Shuwayhit	Inscription 1	3530 – 2130	E2830 ± 700
	Inscription 2	3530 – 2120	E2540 + 990 / - 420
Janin	'Gazelle'	Greater than 1820 ± 50 BP	
Jabal al-Bargh	'Date palm'	3180 – 1770	E2370 + 810 / - 600
Jabal Raat	Anthropomorph 1	5660 – 4960	E5310 ± 350
	'Ibex'	6000 – 5300	E5550 + 450 / - 250
	Anthropomorph 2	4940 – 4240	E4590 ± 350
	Cupule	9330 – 6220	E7968 + 1360 / - 1750
Ain Jamal	Calibration	Known age 1300 to 1350 BP	
Ta'ar	Anthropomorph	2360 – 1570	E2109 + 250 / - 540

Table 2. Preliminary direct dating results from rock art and inscriptions by microerosion analysis and radiocarbon analysis, from nine sites in central, northern and far-southern Saudi Arabia.

and later occupation sites and our study is based on the surface collection of stone objects only, rock art is the only source that can tell us about the weapons, clothing, ornaments etc. used by the prehistoric people in the region. But to do this effectively and anchor the rock art to archaeological evidence, it is essential that some idea of its age be secured. The first direct dating of rock art in the Middle East occurred



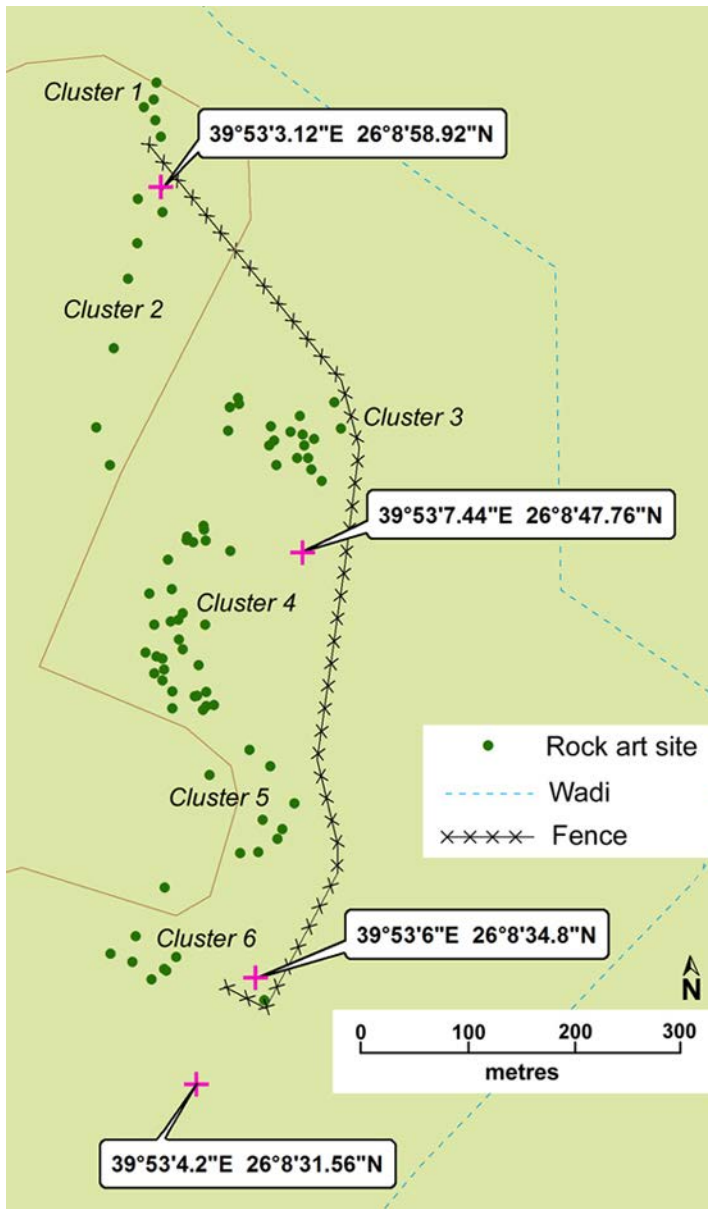
Figure 6. Typical 'Jubbah style' anthropomorph.



Figure 7. Local people call this petroglyph Malik, a King, due to its prominent and elevated location, his dress and traits such as the crown-like headdress; facial features such as nose, ears and mouth and eyes are shown in a naturalistic manner. Jabal Umm Sinman, Jubbah.

at Jabal Umm Sinman in 2001 (Bednarik and Khan 2005: 62), when an early Kufic inscription among the rock art was used to determine a microerosion calibration curve (Bednarik 1992). Since then a program of dating Saudi petroglyphs by several direct and preferably non-intrusive methods (radiocarbon analysis, microerosion, optically stimulated luminescence and colorimetry) has been conducted in many parts of the Kingdom, in the north (at Umm Sinman, Jabal Ash Shuwayhit, Janin, Jabal al-Bargh, Jabal Raat), central region (Al-'Usayla, Umm Asba'a) and in the south (Ain Jamal and Ta'ar in the Jabal Qara site complex). This has provided a number of reliable chronological anchor points for rock art that is unequalled in much of the rest of the world.

Therefore two anthropomorphs at Jabal Umm Sinman are safely dated, as are four of the thousands of petroglyphs at Jabal Raat. Anthropomorph 2 at Umm Sinman is considered to be one of the earliest of the 'Jubbah style' human figures. These are of highly characteristic features, one metre tall or higher, typically slim, wearing skirt-like apparel, in distinctive attitudes with a slight angle between upper and lower body, always painstakingly executed but with ambiguous faces, and frequently found in regimented, closely formed groups of identical size. These figures are so idiosyncratic and utterly unique that they are easily recognizable as the region's signature motif of the

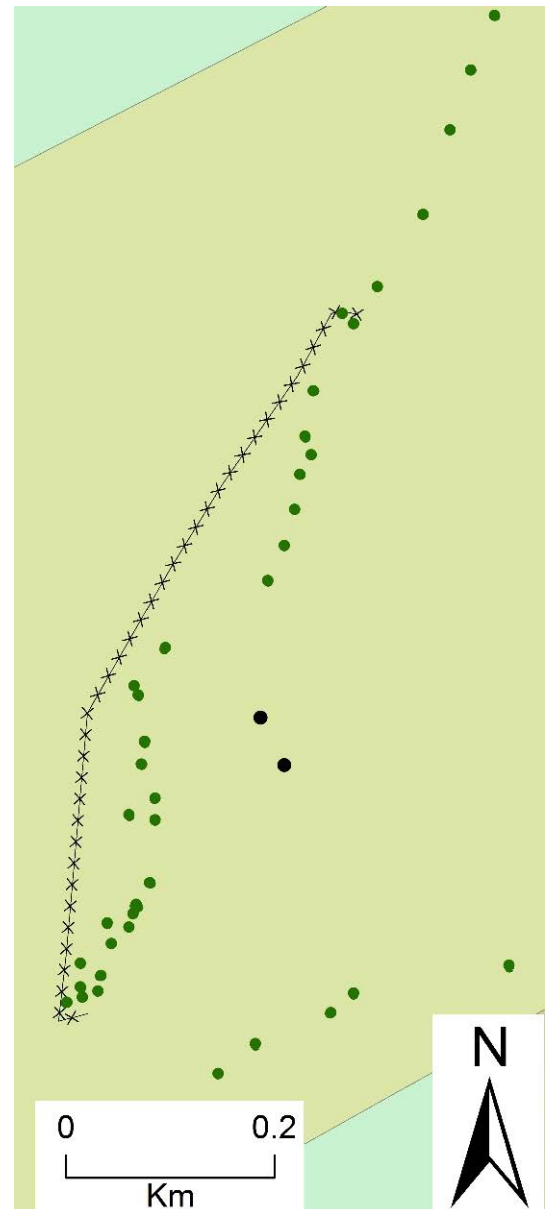


Map 9. The rock art of Jabal Raat, Shuwaymis.

Neolithic. Always fully patinated, they are strictly limited to the Hail region and have never been found elsewhere (Figures 6 and 7). With an age of between 5600 and 7000 years, they date clearly from the last major humid phase when the Jubbah lake was filled. Similarly, the large bovid figures with their often exaggerated horns are also fully patinated and of the same period, and they, like the Jubbah-style humans, occur also at Shuwaymis. Anthropomorph 1 from Umm Sinman, by contrast, offers no distinctive stylistic features and is not fully patinated, and presumably dates from the time of first desertification, as the economy enters the Chalcolithic tradition.

#### 2.a.ix Rock art of Shuwaymis

The Jabals al-Manjor and Raat area is now hardly suitable for human habitation, but even at mid-Holocene times the area was still densely settled, as shown by the



Map 10. The rock art of Jabal al-Manjor, Shuwaymis.

abundance of archaeological evidence (Khan 2007). This includes numerous burial sites, other stone structures, stone implements scattered widely over sites, and the extensive rock art. This complex is the most spectacular of the sites of northern Saudi Arabia (Maps 9 and 10). Its sites consist of slopes of jumbled, sub-angular boulders, mostly 5–10 metres in size, on which many thousands of motifs occur (Figure 8). Some compositions bring to mind monumental masonry work, in that the very detailed and meticulously pounded figures of one or two metres are rendered 15–20 mm deep, as bas-relief figures (Figures 9 and 10). The profusely decorated panels on many of these huge boulders are no longer right way up, and as they changed their orientation every time the boulders moved down the slope, differently oriented figures were added (Figure 11). Some of them occur entirely upside-down, and many are truncated





Figure 8. One of the almost 200 petroglyph panels of Jabal al-Manjor.



Figure 9. Typical Neolithic petroglyphs at Jabal Raat.

by subsequent fractures. The site therefore offers good potential for in-depth seriation studies to create relatively complete sequences of rock art traditions.

The Jabal al-Manjor/Raat complex near the village of Shuwaymis was rediscovered only in the recent past. The remote and relatively inaccessible area far to the west of the village of Shuwaymis features several Pleistocene lakebeds and a series of widely spaced eroding cliffs. Like Jubbah, the site has been in use over a prolonged period of time, certainly for most of the Holocene at least (Figure 12).

On one steeply sloping panel at Raat, about fifteen large cupules of 5–10 cm diameter occur. They appear to be the oldest surviving component of the site, and were already in 2001 considered to be either of the final Pleistocene or the earliest Holocene (Bednarik and Khan 2002). The surface of the panel has largely fallen victim to exfoliation since the cupules were made, and the original surface has best survived within the cupules. The same panel bears a series of archaic geometric motifs, such as circles, chronologically followed by hoof-prints, human footprints occurring in pairs





Figure 10. The extraordinary Neolithic rock art of the Shuwaymis rock art complex is dominated by these fully patinated bas-relief figures of humans and animals, often of bovids.



Figure 11. This decorated block, bearing a series of "Jubbah style figures" and a large bovid image, now lies upside down below the cliffs of Jabal Raat, Shuwaymis.

and superimposed large motifs. Much of this panel is no longer accessible to work on because of a massive boulder gravity has placed above it. The flat underside of this boulder

bears large petroglyphs that are also early, but a set of motifs on its present front face postdates the placement of the boulder. One of its several anthropomorphs, of a post-





Figure 12. Some of the thousands of superimpositions of petroglyphs at the Shuwaymis sites. Here, the earlier, presumably late Neolithic images are clustered in the panel's upper part, followed by various more recent phases of rock art production.



Figure 13. A panel of late Holocene petroglyphs at Jabal al-Manjor, estimated to be 2000 to 2500 years old.

Jubbah style, has been dated to around 4500 years BP. Most recently the great antiquity of the cupule panel was confirmed, when one of its motifs was dated to about 8000 years ago, or possibly somewhat older.

Because of the extraordinary density of petroglyphs at

these major sites, petroglyph-making stone tools (hammer stones) can be found readily, at the Shuwaymis sites as well as at Jubbah. They were made mainly from a dark siliceous contact-metamorphic quartzite occurring locally. These tools were in every formal respect similar to such





Figure 14. The presumably Neolithic component of this panel is dominated by the image of a 2-m-long carnivore, called "The Lion of Shuwaymis".

stone implements found by studies in many other countries around the world (Bednarik 1998). Just as Jubbah comprises a large component of Bronze Age, Iron Age (Figure 13) and historical rock art, these forms also occur at al-Manjor and Raat, though here they are somewhat less commonly represented. Recent graffiti or Islamic inscription, still common at Jubbah, appear to be absent at the Shuwaymis sites.

The Jabal al-Manjor corpus has been divided into twelve clusters comprising a total of 190 panels of petroglyphs (Jennings et al. in press). A complete inventory has not been attempted so far. At Jabal Raat six major clusters of rock art can be discerned.

There is evidence of the continuity of the art at Jubbah and Shuwaymis for several millennia and we have a comprehensive record of cultural activities at Jubbah and Shuwaymis for up to 10,000 years that ceased about 1300 years ago with the advent of Islam and change in belief, faith and life style (Figure 14). Before this period of surviving rock art production, both regions were occupied for about 100,000 years, and apparently beyond that.

#### 2.a.x Inscriptions

The practice of producing rock art in Arabia ceased long ago and there are no oral or written record, legends or stories about it; the culture has been fossilized in the form of the petroglyphs. With the

exception of ancient writings (in Thamudic script) and early Kufic inscriptions nothing can be read or interpreted with certainty.

The presence of Islamic and pre-Islamic inscriptions demonstrates the reliability of patina colour as a relative guide to age. The Jubbah area was occupied by people continuously from the Neolithic until the present day. There are thousands of ancient Arabic inscriptions such as Thamudic and early Islamic writing (Figure 15), suggesting the use of camping and living sites for long times (Al-Theeb 1999; Khan 2007). The Thamudic inscriptions reveal the names of persons and tribes, the tribal symbols representing the tribes that camped or lived near or



Figure 15. This Kufic (early Arabic) inscription at Jubbah dated 147 AH has provided the calibration curve for all rock art datings in the Hail region.



around Jabal Umm Sinman, and in rare cases (e.g. at Yatib) comment directly on rock art imagery. Such cases provide valuable glimpses of the original meaning of rock art motifs. The Arabic writing contains generally verses from the Holy Quran.

In two cases at Jabal Ash Shuwayhit, to the immediate north of Umm Sinman, Thamudic letters were dated by microerosion analysis. In one inscription, the letter 'sh' was determined to have been made  $E2830 \pm 700$  years ago, which identifies this as a relatively early example of the use of Thamudic script. The nearby letter 'p' in another inscription has been estimated to be roughly 2500 years old.

## 2.b History and development

At both Jubbah and Shuwaymis it is the former presence of surface water that has determined the nature of human interaction with the natural landscape. The former freshwater lake at Jubbah was formed on the lee side of Jabal Umm Sinman and existed until mid-Holocene times. Human occupation of the region can be traced back to occasional Acheulian finds, while Middle Palaeolithic stone tools have been observed both on Umm Sinman and in its immediate vicinity. This suggests that already in the Pleistocene, climatic variations attracted human occupation of the Jubbah oasis during dry periods, perhaps acting as a refuge area to both humans and fauna. Near the Shuwaymis sites, streams and lakes occurred during Pleistocene periods and some of this surface water also persisted well into the Holocene. Here, too, Middle Palaeolithic occupation evidence has been reported. Both properties offered apparently excellent living conditions during the first half of the Holocene, attracting significant occupations by Neolithic societies. Present data indicate that the record of surviving rock art commences shortly after 10,000 years ago, providing an insight into Neolithic culture through thousands of petroglyphs that is not equalled anywhere else. Through the depicted fauna the pictorial content of the rock art indicates clearly that living conditions were favourable during this period, at both properties.

However, this extraordinary record provided by the rock art continues through the remainder of the Holocene, first as pictures and eventually these are supplemented by inscriptions. This veritable library provides a continuous record illustrating how human populations coped with environmental fluctuations marking an overall deterioration and gradual desertification. After the lake at Jubbah disappeared wells had to be dug, which by the late 19th century were up to 23 m deep. (Today, with deep wells and pumps, the aquifer has receded to up to 75 m below ground level.) But as the Jubbah lake bed became the only secure water source in the Nafud Desert, the occupants remained and adapted to the arid conditions they faced. This is well reflected in the late Neolithic, Chalcolithic and Bronze Age rock art. The introduction of Thamudic writing, probably in

the order of 3000 years ago, is documented in thousands of inscriptions at Jubbah, compared with significantly lower numbers at Shuwaymis. From the locations and contents of these early inscriptions it is evident that Jubbah had become an important staging place for camel caravans, whereas there was rather less human activity at Shuwaymis. Jubbah lies on an ancient caravan route to Jordan and Syria.

Between 3000 and 2000 years ago, the desertification process became complete across Arabia. Camels now become the dominant animal motif in the surviving rock art and some of the inscriptions express the thoughts, concerns or priorities of their authors. The next major change in the rock art record comes with the introduction of Islam around 1400 years BP, when earlier scripts were replaced by early Arabic writing (Kufic), and the depiction of living things, especially humans, declined markedly. Nevertheless, there are still a small number of depictions found from the subsequent period.

The Jubbah oasis was visited by several European travellers and historians in the late 19th and early 20th century, including by Doughty (1888), Huber (1899), Euting (in 1914), Philby (1952) and Musil (1914). They wrote brief accounts of the site but did not pay any detailed attention to recording rock art or inscriptions from the area.

Scientific archaeological investigations at Jubbah began after the Department of Antiquities and Museums initiated a Comprehensive Archaeological Survey of the entire Kingdom in 1976. As a result, the site was mentioned by Peter Parr and McAdams in their first report in 1976 published in *Atlat* Vol. 1. Christopher Clarke, a British student presented a firsthand account on the rock art of Jubbah in the Arabian Seminar in London in 1979.

The rock art of Jubbah was first thoroughly investigated and recorded by the Rock Art Survey team of the Department of Antiquities and Museums in 1986, which published its initial report on Jubbah in *Atlat* Vol. 11, in 1987. A brief reference of Jubbah with its dating and interpretations was given by Majeed Khan in his PhD thesis of 1989, published by the Ministry of Education (Khan 1993a). Besides these brief reports, a new book by Khan (2011) highlights the importance of this site and provides ample information to visitors. The Ministry established extensive fencing of the eastern side of Jabal Umm Sinman, facing the town of Jubbah, to prevent uncontrolled access to the rock art. Site guards and facilities were installed. In recent years a visitor centre has been built at Jubbah and a new museum in Hail is under construction, all as part of the development of the cultural heritage of the region.

The Shuwaymis sites, although always known to the local Bedouin, were officially rediscovered only in 2001, by the principal of the school at Shuwaymis, Mamdouh al-Rasheedi. He reported the vast corpus of rock art to the Department of Antiquities and Museums, and Majeed Khan went to investigate the report. In November 2001 he and

R. G. Bednarik undertook the first scientific investigation of Shuwaymis rock art (Bednarik and Khan 2002, 2005). In the subsequent years a sealed road was constructed up to Shuwaymis village, and this is now being extended to the visitor centre at the boundary of the buffer zone of the rock art sites.

On 17 September 2012 the Permanent Delegation of Saudi Arabia to UNESCO submitted two rock art site complexes in the Hail region, northern Saudi Arabia, for World Heritage listing. They are currently on the Tentative List, together with almost 1600 other properties around the world. In response to this initial submission, an advisory mission was carried out by Roberto Ontanon-Peredo in April 2013. He had been designated by ICOMOS International to conduct a feasibility study, and he established that a solid case can be made for the nomination, identifying any work that needs to be done to proceed with the nomination. Ontanon-Peredo (2013) noted the need for a comparative

study to justify the claim of Outstanding Universal Value. He also found that the state of conservation of the sites included in the proposal is very good, and that there is no serious risk or imminent threat in the short or middle term that might endanger the property. His report was supportive of the nomination also in several other respects, for instance he noted that legislation in the Kingdom is “markedly protectionist towards its cultural heritage”, and its administration highly centralized. The land areas concerned are the property of the Saudi Government, the local town councils are “extremely cooperative” and existing physical protection of the rock art sites is excellent. Funding conditions for the relevant infrastructure are “more than enough”, as is the potential commitment of human resources. Ontanon-Peredo (2013) concluded that the two site complexes “appear to have potential as the basis for a robust serial nomination”.

### 3. JUSTIFICATION FOR INSCRIPTION

#### 3.1.a *Brief synthesis*

Jabal Umm Sinman near the town of Jubbah and Jabals al-Manjor and Raat in the area of Shuwaymis are about 300 km apart in the Northern Province of Saudi Arabia, the geographical nexus between Africa and Eurasia. The qualities that justify their inscription include not only their spectacular environmental setting in the midst of a desert, but also large numbers of petroglyphs of exceptional quality attributed to between 6000 and 9000 years of human history, followed in the last 3000 years by very early development of writing (Thamudic) that reflects the Bedouin culture, ending in Quranic verses. These stages reveal the use of the sites in different cultural periods during which populations adapted successfully to severe environmental changes by acquiring domesticated animals such as cattle and horses, and latterly the camel.

The Jubbah and Shuwaymis rock art sites comprise, among numerous other rock art and archaeological features, the world's largest and most magnificent surviving corpus of Neolithic petroglyphs. Neolithic rock art occurs in many locations across Eurasia and northern Africa, but nowhere in such dense concentration or with such consistently high visual quality. The excellence of the bas-reliefs precedes similar masonry work elsewhere by several millennia.

Together these bodies of exquisite rock art represent a continuous record of human endeavour covering the past 10,000 years. The record commences with a massive component of Neolithic artwork, followed by comprehensive Chalcolithic, Bronze Age, Iron Age and Historic traditions, all

of which used the same localities to create their respective art corpora.

The rock art records the dramatic climatic and environmental changes during the entire Holocene period in the region. When hunting was possible during the early Neolithic, the ibex was frequently depicted in the petroglyphs alongside human figures with unusual garments and head-dresses. When lakes filled during the mid-Holocene, it was possible to acquire cattle and horses from neighbouring regions and find adequate grazing for them. They are illustrated along with wheeled chariots in the petroglyphs. As the lakes gradually dried up the camel became the most important theme in the rock art, as the process of desertification progressed. Thousands of inscriptions in Thamudic and Arabic script were added in the last three millennia. No similarly comprehensive library chronicling such changes, covering a similar time span, has been inscribed on the World Heritage list.

Although precise inventories are not yet available, the number of petroglyphs and inscriptions at the Jubbah property is estimated at about 15,000. Their number is even greater at Shuwaymis, and here some of the areas included in the buffer zone have not even been examined yet. There are larger rock art complexes in other parts of the world, but rarely are they as compact and visually impressive as these two.

In contrast to most other rock art sequences in the world the approximate antiquity of the components of the Hail rock art is reliably known, because their ages are anchored

to a series of direct dates derived from key elements. This satisfies the implied need in three of the four criteria under which inscription is proposed, to identify the specific cultures that created the Outstanding Universal Values in question.

It follows from these preliminary factual considerations that the qualities of the immovable cultural heritage at Jubbah and Shuwaymis are outstanding. It is equally evident that the OUVs of these properties need to be protected and managed in perpetuity, because they form a crucial and integral part of the story of how Middle Eastern civilizations developed in the important first half of the Holocene. These monuments fill the current gap between the many Palaeolithic properties on the World Heritage List, and the subsequent monumental structures of emerging civilizations beginning with the middle of the Holocene. The inscription of the Hail monuments in the List is an absolute necessity, if only to fill the current lacuna.

### 3.1.b *Criteria under which inscription is proposed*

The property manifests outstanding universal values with respect to four complementary World Heritage criteria:

**Criterion (i)**, “*representing a masterpiece of human creative genius*”: The size, diversity, skilful workmanship and sheer number of images in all rock art traditions at both of the properties nominated are evidence of the ability of a series of cultural traditions to create masterpieces that have lasted for thousands of years and are likely to last for many more, with some care. Whether the purpose of the rock art was to illustrate religious ideas and experiences or to make places powerful for different reasons, the artistic skills demonstrated are undeniably exceptional.

**Criterion (ii)**, “*exhibiting an important interchange of human values, over a span of time or within a cultural area of the world, on developments in architecture or technology, monumental arts, town-planning or landscape design*”: The environmental setting of both properties along caravan routes across the desert has no doubt contributed to the interchange of values, reflected in the work of successive generations of artists to, in a virtually monumental way, setting high depictive standards. Over a period of some 10,000 years, the development of the monumental arts at the Hail sites reflects not only changes in the environment and the human adaptations to these; it also reflects changes in human values, thoughts and priorities. The outstanding property of rock art, of remaining available for contemplation and response to later cultural traditions, is particularly pertinent at these sites, which feature a cumulative record of many millennia, each tradition responding to all of the previous.

**Criterion (iii)**, “*bearing a unique or at least exceptional testimony to a cultural tradition or to a civilization which is living or which has disappeared*”: From the early to the late Neolithic, through the subsequent Chalcolithic, the Metal Ages and the historical period, this corpus of rock

art presents an exceptional record of cultural priorities and dramatic environmental adaptations covering the entire Holocene period. Especially the graphic documentation from the Arabian Neolithic period is of utterly unique detail in bringing to life a rich cultural epoch about which we would otherwise be most inadequately informed. The two Hail properties present the world's largest and most magnificent surviving corpus of Neolithic petroglyphs, therefore they are unquestionably unique, not just exceptional. The quality of the bas-reliefs is unequalled anywhere else at the time in question, 6000 to 9000 years ago.

**Criterion (v)**, “*being an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change*”: The cultures that were responsible for the petroglyphs at the two properties nominated here have adapted to changing climate and severely fluctuating water availability. As a library recording the interaction of successive societies with their volatile environment, subjected to desertification, lowering of aquifer, volcanic eruptions and the irreversible changes that characterize Arabia today, the rock art provides a unique testament. It is also a comprehensive demonstration of the people's resilience and determination in the face of catastrophic changes. Emphasizing the developments that led to present-day circumstances affecting the vulnerability of traditional Bedouin culture in the region, and Saudi society at large, this rock art offers an exceptional record of human interaction with a deteriorating environment.

### 3.1.c *Statement of Integrity*

The integrity of the properties of Jabal Umm Sinman, Jabal al-Manjor and Jabal Raat is protected by the boundaries of the core areas and adjacent buffers.

In the case of Jabal Umm Sinman, the boundary of the core area follows the junction between the sandy desert and the edge of the rocky mountain outcrop. It is designed to conserve the visual integrity of the property as a cultural landscape that encompasses 14 clusters of petroglyphs on all sides of the mountain. The paved road to the east provides a clear separation between the petroglyphs and their context on the lower mountain slopes to the west, and the town of Jubbah to the east. The buffer extends northwards to enclose several smaller rocky outcrops with fewer petroglyphs.

The core area of the Shuwaymis property includes both rocky outcrops, Jabal Raat to the west and Jabal al-Manjor to the east, as well as the sandy valley between them. Here the visual integrity of the landscape that includes a total of 18 clusters of petroglyphs emphasises the deliberate selection of rocks for petroglyphs on the lower slopes close to the desert sands, mostly facing the intervening land where a lake once existed. Neighbouring rocky outcrops to the north

are incorporated into the buffer as they have not yet been thoroughly investigated. Apart from a Bedouin camp with fewer than 25 people, there is no town or large settlement nearby.

Covering more than 8 km at Jabal Umm Sinman (Figure 16) and about 6 km at Manjor and Raat, steel fences, bars and locked access gates protect the finest examples of rock art. The core areas include the iconic sandstone hills located in the middle of the great desert and also encompass the large number of petroglyphs and inscriptions placed in these desert ecosystems. The ancient cultural entities demonstrate the long established interaction between early populations and their environment. In addition the fenced areas are situated within larger buffers and at both sites no changes to the landscape are permitted, and no human access other than controlled visitation is allowed. Therefore the integrity of the sites is secured in perpetuity and no vandalism or illegal entry is possible.

All elements necessary to express the OUVs of the two properties, namely numerous well-preserved petroglyphs, identifiably different rock art traditions over the period from hunting and gathering to animal domestication and writing, independent evidence for climatic change at nearby palaeolake deposits, and evidence for human interaction in a vulnerable environment, are amply represented at the Hail properties, and both core zones are of adequate size to ensure the complete representation of the features that convey the OUVs.

#### 3.1.d Statement of Authenticity

The petroglyphs at Jabal Umm Sinman, as well as Jabal al-Manjor and Jabal Raat, have retained their original location, setting, materials, form and design, but they no longer function within a cultural tradition. The petroglyphs as well as Thamudic and Arabic inscriptions that have been added within the last three thousand years hint at intangible heritage that could contribute to the spirit and feeling of the culture of the people who made the petroglyphs.

As no vandalism or illegal entry has been possible in the last few decades, and there is no evidence of reconstruction or recent modification of any of the rock art, deterioration processes are limited to the effects of natural erosion. The causes of deterioration have been mostly meteoric water, wind and geological weathering, which are inevitable and have so far had limited effect on the petroglyphs, considering



Figure 16. Part of the 8-km-long steel fence protecting the rock art of Jabal Umm Sinman at Jubbah.

their age. The clearly different phases of weathering in fact underline the authenticity of the rock art corpus as they would be impossible to replicate.

The following significant attributes of authenticity of the nominated rock art properties can be further elaborated.

Authentic form and design can be seen in the depiction in the rock art of ancient modes of apparel, tools, weapons and ornaments that do not occur outside of Saudi Arabia.

Authentic materials and substance are evident in the heavily patinated condition of thousands of petroglyphs and their state of weathering, the occurrence of some of the petroglyphs on the undersides of massive blocks that have tumbled from the cliffs, and in the presence of hammerstones used in the creation of the petroglyphs.

Changes in the use and function of particular images are evident in the inscriptions as well as in the depiction of animal species that have long disappeared from the region. There is a distinctive separation of the zoomorphs of different periods into the wet and cool phase (bovine figures) and the hot and dry-phase (camel figures).

The integrity of the authentic location and setting of the petroglyphs is evident in the frequent occurrence of archaeological remains nearby and the truncation of motifs by fractures and the occurrence of the separated fragments many metres apart.

Finally, the age of successive traditions of petroglyphs has been established through several direct dating methods, including colorimetric sequencing of patinae. All these factors are in agreement with the finding that the rock art dates from between 9000 years ago to the recent past, and the approximate age of each individual motif can be roughly estimated on the basis of the chronological framework currently available.



The scientific dating by Bednarik and Khan (2002, 2005) and various analyses of Jubbah Lake palaeo-soils (Gerrard et al. 1981; Petraglia et al. 2011, 2012; Jennings et al. 2013) pertain. The former provides age estimates for selected key motifs and the latter offer palaeoenvironmental information broadly relatable to the rock art's iconographic content.

### 3.1.e Protection and management requirements

Both Jabal Umm Sinman at Jubbah and Manjor and Raat at Shuwaymis are well managed within the legal protection system provided by the Department of Antiquities and Museums. The overriding concern of protection and management of the Hail rock art properties is not just to ensure, but to virtually guarantee the preservation of the Outstanding Universal Values of these properties over time. The specific long-term expectations are that in addition to the already secured physical and legal protection of the petroglyphs, there will be a program in place for monitoring their precise condition, especially in terms of effects of increased visitation and natural deterioration.

It is proposed to extend the management and protection of the sites by preparing for risks caused by increased visitation; continuing constructive collaboration with the key stakeholders, the local municipalities; improving visitor facilities and infrastructure; and the improvement of staff expertise.

Of particular importance is the establishment of a comprehensive monitoring system of key indicators measuring the state of conservation of the sites. It is acknowledged that the challenges, especially of a major increase in visitor numbers, may not be readily predictable for the long term, and may demand significant adjustments to the Management Plan. While there are no foreseeable threats to the authenticity or integrity of the attributes engendering Outstanding Universal Value, adjustments to management practices may become necessary in the future.

The Management Plan submitted with this nomination

sets out the general parameters of managing the properties, but it will remain flexible to accommodate any new requirements deriving from the findings of the monitoring program. Various aspects are set out in subsequent sections below, including the pressures arising from development and environmental factors (see 4.b.i and 4.b.ii), the projected level of visitation (4.b.iv), the available legislative protection (5.b) and the means of implementing protective measures. It is relevant to emphasize that the two properties and most of the surrounding desert zones are government-owned and administered land, and that both sites have enjoyed very effective physical protection for several years already. They have been enclosed in substantial and extensive steel fences totalling 14 km length, and a system of site supervision by guards has been installed at both Jubbah and Shuwaymis (Figure 17). Therefore basic protection measures have been in place for some years and have been shown to be most effective.

The managing authority, the Saudi Commission for Tourism and Antiquities, possesses the required human and financial resources to continue managing these monuments most effectively. It has at its disposal adequate legislative means, the political will and support to discharge its duties to the best standards, and a long-term commitment to the protection and preservation of properties that are entirely under its executive control. In this sense it is in a far better position than State Parties in countries where various agencies share the management of immovable cultural heritage. The administrative structures in the Kingdom of Saudi Arabia are highly centralized and effective, and the commitment of the SCTA, representing the State Party, to the long-term protection, preservation and effective management of the nominated properties is beyond question.

## 3.2 Comparative analysis

The data so far gained from the Jubbah and Shuwaymis petroglyph complexes is supplemented in a number of ways at other Saudi Arabian rock art sites, and needs to be seen within the wider region's palaeoenvironmental context as well as the archaeological setting. A comparative analysis is also required to assess what renders the nominated property particularly outstanding, and needs to include comparisons with the state of conservation of similar properties.

### 3.2.i Comparisons with other Saudi Arabian sites

Rock art occurs at numerous other sites in the northern region of Hail, but their survey indicates that they are generally of significantly smaller assemblages. Of particular interest is Janin Cave, east of Hail, because it is one of very few deep caves in the predominantly sandstone region.

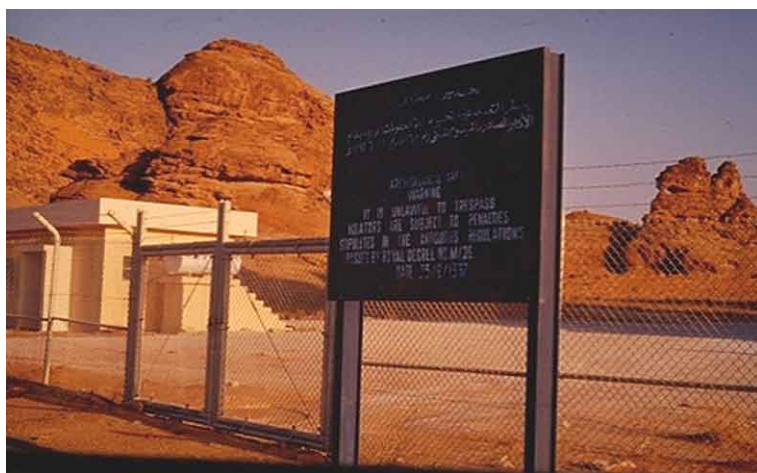


Figure 17. Guard house and sign board on the fenced site of Jubbah.

The cave is about 100 m deep and well decorated, but mostly so in the part accessed by daylight. At the nearby main site of Janin, one of those in the Kingdom that are protected by long steel fences, the patination of a zoomorph resembling an antelope was sampled for accelerator mass spectrometry radiocarbon analysis. The result,  $1820 \pm 50$  years BP (OZF900) was, however, regarded as an inconclusive and conservative minimum date, because of the inherently open carbon system of such deposits (Bednarik and Khan 2005: 61–62).

The Milihiya site, in the same area, comprises only sporadic occurrences of petroglyphs on low cliffs and boulders, whereas nearby Yatib is a spectacular site on a high cliff and the boulder scree below it. This site is also well protected by a steel fence and a caretaker from a nearby community. Yatib presents rock art of exceptional quality, but is of significantly smaller size than Umm Sinman or the massive Shuwaymis sites. Further south, just outside the township Al-Hayet is a small petroglyph site named Qilat al-Hissan, located on volcanic tuff containing basalt clasts. Of more interest is Jabal al-Bargh, to the south of Shuwaymis village. Although also a small site, its purported depiction of date palms is of interest because of the question of that tree's debut in central Arabia. One of these tree images has provided excellent conditions for microerosion analysis and has yielded a date of  $E2370 + 810 / - 600$  years, which falls into the early part of the final desertification period.

Two more petroglyph sites in the central part of the Kingdom have been subjected to scientific analysis, and one of them has also yielded a dating from one of its hundreds of motifs. This is Al-'Usayla, about 115 km southwest of Riyadh. The site is very compact and exceptional in the number of motifs over a small surface area. One zoomorph, resembling an ibex, has provided a direct age estimate of  $E2680 + 500 / - 560$  years BP, using the Jubbah calibration curve (rather than the geographically much closer, but less reliable Umm Asba'a curve). The second site, Umm Asba'a, is c. 85 km west of Riyadh. Marked by its prominent mushroom-shaped rock it features a relatively small assemblage of petroglyphs.

In comparing these various sites to those nominated herein their numbers of rock art motifs are very significantly smaller and, with the possible exception of Yatib, the visual quality of their rock art is also markedly less impressive. The state of conservation, however, is uniformly superb, although few if any of these sites can match the Neolithic antiquity of the early components of the nominated sites.

Another major rock art complex of Saudi Arabia that has received recent scientific attention is the great concentration of sites north of Najran, generally of the mountains of Al Qara and Jabal al Kawbab. In contrast to the relatively compact properties at Jubbah and Shuwaymis, the many sites of this complex are spread over a considerable area, measuring with outliers up to 130 km in north-south extent.

This is clearly the only other Arabian contender for highest protection status, but several considerations speak against World Heritage nomination. One is the proximity to the volatile border with Yemen, another its low accessibility relative to the two other site complexes, and the current lack of protective measures. Whereas the Jubbah and Shuwaymis properties have been enclosed in extensive steel fences for many years, no such safeguard exists anywhere in the extensive Al Qara site complex. Nor have formal caretaker arrangements been established, like those at several sites in the Hail region.

Nevertheless, for the purpose of comparison it needs to be appreciated that the Al Qara complex houses several tens of thousands of petroglyphs, and its substantial library of Arabian rock inscriptions may exceed those at Jubbah in number. However, their Thamudic content is very low, with Kufic and recent Islamic texts clearly dominating. Although there are some minor early petroglyph sites, the great bulk of this massive heritage monument is of more recent date than much of the nominated Hail rock art; most of the Al Qara and Jabal al Kawbab rock art is probably under 3000 years old (Bednarik and Khan 2009). The complex includes several dozen major concentrations of rock art, some of which have been examined scientifically. This has resulted in OSL and microerosion datings, and it is especially relevant that the new method of colorimetric patination analysis was pioneered at one of these sites, Najd Sahî. After determining 1620 colorimetric readings there from five petroglyphs, their seriation was calibrated against a microerosion-dated petroglyph at the nearby Ta'ar site (Bednarik 2009), providing a base for easy age estimation in the region.

Recent optically stimulated luminescence dating from the site Ain Jamal in the vast Jabal Qara rock art complex, derived from the former surface of the sandstone bedrock, now concealed by reprecipitated carbonate, dates the presence of the last water source at the site. This final wet phase in the interior of southern Arabia began about 3600 years ago, diminishing over the following millennium, with rapid desertification between 2500 and 1500 years ago. Yet some of the most impressive rock art of the region dates from  $E2109 + 250 / - 540$  years BP, at the nearby Ta'ar site. This confirms an observation made in many parts of the world that rock art production seems to peak during periods of environmental stress, perhaps in response to such conditions, as part of supplication rituals and similar activities.

The example of the Najran rock art complexes indicates that large rock art concentrations exist elsewhere in the Kingdom of Saudi Arabia, but this corpus, although more recent than the bulk of the Jubbah and Shuwaymis rock art, is often less well preserved. There is the evidence of the frequent practice of using prominent rock art panels for target practice in the Najran region, which has left numerous bullet impacts, and the sandstone is also slightly less



stabilized. Again this implies that the integrity of the Universal Outstanding Values found at Jubbah and Shuwaymis is not matched by any other rock art site in Saudi Arabia.

### 3.2.ii *The Middle East*

Rock art occurs in practically all the countries of the Middle East, but knowledge about it remains very uneven. Moreover, apart from the few motifs from Saudi Arabia listed above, no other rock art has been dated anywhere in the Middle East, be it by archaeological (excavation) or scientific means. Intricate relative chronologies have been invented for some regions, such as the Sinai Peninsula and southern Saudi Arabia, but have been refuted at least in the latter case (Khan 1998; Bednarik and Khan 2005). It has been claimed that 40,000 images exist at the Sinai's main concentration, the extensive mountain Har Karkom (Anati 1996), but the reliability of the claim has been questioned and most of the Sinai rock art does not occur in such localised concentrations as at Jubbah and Shuwaymis. Also, the tentative dating of Anati's (1996) Negev sequence is dependent on his earlier, clearly false stylistic chronology of Arabia (Anati 1963, 1968, 1972, 1974).

Some of the earliest rock art in the Middle East has been claimed to be in southern Turkey, at sites such as Belidibi (Mellaart 1975), Kara'In and Öküzlü'In, but these contentions refer to portable art rather than rock art, which has in fact been found of earlier ages in the Levant (Weinstein-Evron and Belfer-Cohen 1993; Goring-Morris 1998; Kaufman 1999). Rock art in Anatolia occurs in small concentrations and lacks the spectacular dimensions and visual impact found in Saudi Arabia. Relatively richer concentrations are found in northern Syria, where a great wealth of pre-Islamic inscriptions (reportedly 28,000) has been reported, in Safaitic, Himaic, Thamudic, Nabatean, Greek and Latin. A large proportion of these have been related to adjacent petroglyphs. Rock art continues in Jordan, where again portable art has been dated through epigraphy (Betts 1998). About a hundred rock art sites are known in Yemen, which include rock paintings (Jung 1991, 1994). The petroglyph traditions resemble those of southern Saudi Arabia and they are better documented in the north of the country than in the south. There are no major concentrations in Yemen, and Al Qara is clearly the main centre of rock art on the southern Arabian Peninsula.

Similar conditions are apparent in neighbouring Oman, with only two notable concentrations of rock art, at Jabal Akdhar in the al-Hajjar mountain range (Clarke 1975; Preston 1976; Jäckli 1980) and in Dhofar (al-Shahri 1991). There is a preference for limestone regions which tend to preserve petroglyphs poorly. These occur frequently in wadis where they are worn by floodwater. The Dhofar sites comprise paintings, as well as painted inscriptions. In United Arab Emirates, several scattered petroglyph sites have been reported (e.g. Jongbloed 1994), but they are

small groups and of comparatively crude execution. Further north along the coast of the Gulf, even the small state of Qatar contains a few rock art sites, where the occurrence of presumed boat petroglyphs is noteworthy (Facey 1987). There are also cupules (cup marks) and game-boards on the limestone pavements.

Rock art certainly does occur in Iraq, but there are virtually no detailed reports of it, although it appears the major occurrences may be in the Kurdish parts. Most certainly petroglyphs are plentiful across Iran, as well as in the small countries of the Caucasus region, but published reports about this wealth have only begun to emerge in recent years (Lahafian 2004, 2010; Ghasrian 2007). Further east, in both Pakistan and Afghanistan, the level of knowledge about rock art is even lower than in Iran. Although it is known that there are great bodies of rock art in those regions, nothing of consequence is known about them internationally, and there are, in contrast to Iran and especially India, not even established traditions of surveying rock art. Finally, as part of the actual Middle East, Egypt features substantial rock art sites (Winkler 1938; Červíček 1986; Reimer 2009), especially in the Eastern Desert (Redford and Redford 1989; Judd 2007). In fact Egypt is the only Middle Eastern country, apart from Saudi Arabia, to have provided scientific dating for any rock art (Huyge et al. 2001). However, due to the strong focus on dynastic archaeology, rock art has been neglected in Egypt and there are no sites of a quality approaching that of the Hail sites.

In short, there is no rock art complex known in the Middle East that would match the Outstanding Universal Values found at the two Hail properties, or match their petroglyphs, preservation or management qualitatively.

### 3.2.iii *The global context*

To complete this comparative analysis it is essential to relate the Saudi rock art, especially the two complexes being submitted, to the global scene. Contrary to popular belief, the largest concentrations of world rock art are not in Europe, but, in roughly descending order of size, in Australia, southern Africa, India, the Sahara, China, the Southwest of the USA, and in parts of South America such as the Brazilian Noreste and sections of the Andean region. Within this framework, in sheer quantity, Saudi Arabia probably matches the Sahara, so it possesses, on current indications, one of the four or five most prolific rock art corpora of the world. This needs to be somewhat qualified, by observing that the largest rock painting bodies are in many cases related to the sandstone facies of the former Gondwana plate (southern Africa, India, northern Australia, northeastern Brazil), i.e. they are determined by geology. This is because of the particular susceptibility of these sandstones to shelter formation, and rock paintings survive very poorly without shelter. The largest petroglyph regions, however, are found in arid and semi-arid environments, and here Saudi Arabian rock art is a prime

example: the absence of capillary moisture from an aquifer, low rainfall and high atmospheric pH all combine to provide the best preservation conditions, which are accentuated by the low incidence of iconoclasm.

Quantity of rock art is not the only variable determining the importance of a rock art corpus. For instance the Final Pleistocene cave art of southwestern Europe is a relatively small body of a few thousand images, but of great scientific and cultural importance, and is therefore heavily over-represented on the World Heritage List. Other factors determining the relative importance of regional rock art corpora are their visual appeal, their potential for tourism, their significance to specific living societies, and their roles in determining the identities of cultures and societies. Just as French cave art underscores the French belief in cultural pre-eminence or the Australian rock art establishes the belief of the Aboriginal people of “who they are”, significant rock art in other parts of the world can greatly help define the cultural origins of peoples.

On the basis of current information, three of the four largest rock art accumulations of the Middle East are in Saudi Arabia. Of these, Jubbah and Shuwaymis are the densest concentrations, also showing the most impressive artwork by far, and they include the oldest tradition represented. If one were to take the most finely worked large Neolithic petroglyph panels of these two places and placed them immediately next to the best panels of generally younger Saharan, Chinese, Indian, South African, American or Australian petroglyphs, or the exquisite workmanship of some Rapa Nui panels, it would be apparent that, purely in terms of visual impact, technical perfection or “impressiveness”, they would easily match or surpass the best of them. In terms of age they generally eclipse them. Therefore it can be said that the best panels of the two Saudi site complexes are among the very best petroglyph panels in the world, simply in terms of quality of workmanship and overall visual impact. Of course each rock art tradition has very different properties and stylistic variables, and “visual impact” is not the only OUV to be considered here. However, it needs to be said that the Jubbah and Shuwaymis Neolithic rock art is the best preserved and most impressive rock art of that period in the world. That is its primary OUV.

In terms of their state of conservation, the Jubbah and Shuwaymis petroglyphs compare favourably with most rock art corpora around the world. The state of rock art preservation is clearly a function of antiquity, rock type and relative protection from the elements. The rock art nominated here is generally exposed to precipitation and occurs on a variety of sandstones, which are of variable resistance to weathering. The older traditions, essentially those exceeding c. 5000 years in age, are uniformly patinated by iron and manganese salts, and this accretionary mineral coating has certainly contributed to their conservation. The Neolithic images, which form the perhaps most impressive

component of this body, are generally better preserved than petroglyphs of similar ages and on comparable rock types anywhere else. Low annual precipitation and high ambient atmospheric pH have very probably contributed to this state, which in the absence of nearby sources of industrial and carbon emissions will hopefully continue.

### 3.3 Proposed statement of Outstanding Universal Value

#### a) Brief synthesis

Jabal Umm Sinman near the town of Jubbah and Jabals al-Manjor and Raat in the area of Shuwaymis are about 300 km apart in the Northern Province of Saudi Arabia, the geographical nexus between Africa and Eurasia. The qualities that justify their inscription include not only their spectacular environmental setting in the midst of a desert, but also large numbers of petroglyphs of exceptional quality attributed to between 6000 and 9000 years of human history, followed in the last 3000 years by very early development of writing (Thamudic) that reflects the Bedouin culture, ending in Quranic verses. These stages reveal the use of the sites in different cultural periods during which populations adapted successfully to severe environmental changes by acquiring domesticated animals such as cattle and horses, and latterly the camel.

The Jubbah and Shuwaymis rock art sites comprise, among numerous other rock art and archaeological features, the world's largest and most magnificent surviving corpus of Neolithic petroglyphs. Neolithic rock art occurs in many locations across Eurasia and northern Africa, but nowhere in such dense concentration or with such consistently high visual quality. The excellence of the bas-reliefs precedes similar masonry work elsewhere by several millennia.

Together these bodies of exquisite rock art represent a continuous record of human endeavour covering the past 10,000 years. The record commences with a massive component of Neolithic artwork, followed by comprehensive Chalcolithic, Bronze Age, Iron Age and Historic traditions, all of which used the same localities to create their respective art corpora.

The rock art records the dramatic climatic and environmental changes during the entire Holocene period in the region. When hunting was possible during the early Neolithic, the ibex was frequently depicted in the petroglyphs alongside human figures with unusual garments and head-dresses. When lakes filled during the mid-Holocene, it was possible to acquire cattle and horses from neighbouring regions and find adequate grazing for them. They are illustrated along with wheeled chariots in the petroglyphs. As the lakes gradually dried up the camel became the most important theme in the rock art as the process of desertification progressed. Thousands of inscriptions in Thamudic and

Arabic script were added in the last three millennia. No similarly comprehensive library chronicling such changes, covering a similar time span, has been inscribed on the World Heritage list.

Although precise inventories are not yet available, the number of petroglyphs and inscriptions at the Jubbah property is estimated at about 15,000. Their number is even greater at Shuwaymis, and here some of the areas included in the buffer zone have not even been examined yet. There are larger rock art complexes in other parts of the world, but rarely are they as compact and visually impressive as these two.

In contrast to most other rock art sequences in the world the approximate antiquity of the components of the Hail rock art is reliably known, because their ages are anchored to a series of direct dates derived from key elements. This satisfies the implied need in three of the four criteria under which inscription is proposed, to identify the specific cultures that created the Outstanding Universal Values in question.

It follows from these preliminary factual considerations that the qualities of the immovable cultural heritage at Jubbah and Shuwaymis are outstanding. It is equally evident that the OUVs of these properties need to be protected and managed in perpetuity, because they form a crucial and integral part of the story of how Middle Eastern civilizations developed in the important first half of the Holocene. These monuments fill the current gap between the many Palaeolithic properties on the World Heritage List, and the subsequent monumental structures of emerging civilizations beginning with the middle of the Holocene. The inscription of the Hail monuments in the List is an absolute necessity, if only to fill the current lacuna.

The outstanding universal values embodied in the rock art of Jabal Umm Sinman and Jabal al-Manjor/Raat are the high quality of the petroglyphs (engravings) that display distinctively different rock art traditions over the last 10,000 years and reflect major economic and cultural changes, and the adjustments that people made to climate change in a region that has always been a bridge between Africa and the continents beyond.

Situated at the geographical nexus between Africa and Eurasia, Saudi Arabia has long served as a corridor through which people moved, exchanging technological innovations, trade goods, cultural values and beliefs. The exceptionally abundant and well-preserved petroglyphs on rocky outcrops in what is now a sandy desert record some of these major events in human history against a backdrop of climatic change.

The oldest rock art tradition evident at both of the properties in the serial nomination is one of the world's largest and most magnificent surviving examples of early Neolithic petroglyphs. It includes animals such as the ibex, which was revered by early Neolithic people who depicted the horns in exaggerated form. This artistic device and

the associated bold representations of people herald the monumental arts of later civilizations of the Middle East. Neolithic stone artefacts were left behind at encampments near the shores of palaeolakes more than 6000 years ago.

As cattle and horses were domesticated, they were brought to the region and images of them were added to the art corpus. With increased desiccation and the drying up of lakes after 3000 years ago, camels became essential to the economy of the ancestors of the Bedouin and are illustrated in abundance alongside Thamudic and Arabic script. Depictions of weapons of war suggest that this was a contested landscape. Graves and stone structures within the buffer zones are further testimony to the rich history of the region and have great potential for further research in the region where some of the world's major religions and writing systems evolved.

## **b) Justification for criteria**

under which the Properties are nominated

**Criterion (i):** The exceptionally large number of petroglyphs created by using a range of techniques with simple stone hammers, against a background of gradual environmental deterioration, are visually stunning expressions of the human creative genius by world standards, comparable to the messages left by doomed civilizations in Mesoamerica or on Easter Island. In that sense alone they are of highest outstanding universal value.

**Criterion (ii):** "To exhibit an important interchange of human values, over a span of time or within a cultural area of the world, on developments in ... monumental arts", applies to Jubbah and Shuwaymis, where certainly more than 6000 years of continuous human occupation is archived in both rock art and inscriptions.

**Criterion (iii):** At Jubbah we can follow the battle of past societies against the environmental catastrophe they experienced and adapted to, in a truly exceptional example of such a situation where the petroglyphs record the nature of the changes and the stone artefacts show where people lived in relation to the rock art and to the lake as it gradually dried up. At Shuwaymis, by contrast, the petroglyphs are all that remains of the testimony of a society that vanished, leaving behind a pristine record of its existence that is of a magnitude rarely encountered elsewhere in the world.

**Criterion (v):** Description as a traditional human settlement or human interaction with a vulnerable environment "under the impact of irreversible change" seems to have been formulated specifically for the Saudi site complexes. It is hard to think of alternative, similarly comprehensive records of civilizations facing environmental oblivion, anywhere in

the world, that have left such brilliant testimony of their genius. The two properties nominated literally exemplify this criterion.

### c) Statement of Integrity

The integrity of the properties of Jabal Umm Sinman, Jabal al-Manjor and Jabal Raat is protected by the boundaries of the core areas and adjacent buffers.

In the case of Jabal Umm Sinman, the boundary of the core area follows the junction between the sandy desert and the edge of the rocky mountain outcrop. It is designed to conserve the visual integrity of the property as a cultural landscape that encompasses 14 clusters of petroglyphs on all sides of the mountain. The paved road to the east provides a clear separation between the petroglyphs and their context on the lower mountain slopes to the west, and the town of Jubbah to the east. The buffer extends northwards to enclose several smaller rocky outcrops with fewer petroglyphs.

The core area of the Shuwaymis property includes both rocky outcrops, Jabal Raat to the west and Jabal al-Manjor to the east, as well as the sandy valley between them. Here the visual integrity of the landscape that includes a total of 18 clusters of petroglyphs emphasises the deliberate selection of rocks for petroglyphs on the lower slopes close to the desert sands, mostly facing the intervening land where a lake once existed. Neighbouring rocky outcrops to the north are incorporated into the buffer as they have not yet been thoroughly investigated. Apart from a Bedouin camp with fewer than 25 people, there is no town or large settlement nearby.

Covering more than 8 km at Jabal Umm Sinman (Figure 16) and about 6 km at Manjor and Raat, steel fences, bars and locked access gates protect the finest examples of rock art. The core areas include the iconic sandstone hills located in the middle of the great desert and also encompass the large number of petroglyphs and inscriptions placed in these desert ecosystems. The ancient cultural entities demonstrate the long established interaction between early populations and their environment. In addition the fenced areas are situated within larger buffers and at both sites no changes to the landscape are permitted, and no human access other than controlled visitation is allowed. Therefore the integrity of the sites is secured in perpetuity and no vandalism or illegal entry is possible.

All elements necessary to express the OUVs of the two properties, namely numerous well-preserved petroglyphs, identifiably different rock art traditions over the period from hunting and gathering to animal domestication and writing, independent evidence for climatic change at nearby palaeolake deposits, and evidence for human interaction in a vulnerable environment, are amply represented at the Hail properties, and both core zones are of adequate size to ensure the complete representation of the features that

convey the OUVs.

### d) Statement of Authenticity

The petroglyphs at Jabal Umm Sinman, as well as Jabal al-Manjor and Jabal Raat, have retained their original location, setting, materials, form and design, but they no longer function within a cultural tradition. The petroglyphs as well as Thamudic and Arabic inscriptions that have been added within the last three thousand years hint at intangible heritage that could contribute to the spirit and feeling of the cultures of the people who made the petroglyphs.

As no vandalism or illegal entry has been possible in the last few decades, and there is no evidence of reconstruction or recent modification of any of the rock art, deterioration processes are limited to the effects of natural erosion. The causes of deterioration have been mostly meteoric water, wind and geological weathering, which are inevitable and have so far had limited effect on the petroglyphs, considering their age. The clearly different phases of weathering in fact underline the authenticity of the rock art corpus as they would be impossible to replicate.

The following significant attributes of authenticity of the nominated rock art properties can be further elaborated.

Authentic form and design can be seen in the depiction in the rock art of ancient modes of apparel, tools, weapons and ornaments that do not occur outside of Saudi Arabia.

Authentic materials and substance are evident in the heavily patinated condition of thousands of petroglyphs and their state of weathering, the occurrence of some of the petroglyphs on the undersides of massive blocks that have tumbled from the cliffs, and in the presence of hammerstones used in the creation of the petroglyphs.

Changes in the use and function of particular images are evident in the inscriptions as well as in the depiction of animal species that have long disappeared from the region. There is a distinctive separation of the zoomorphs of different periods into the wet and cool phase (bovine figures) and the hot and dry-phase (camel figures).

The integrity of the authentic location and setting of the petroglyphs is evident in the frequent occurrence of archaeological remains nearby and the truncation of motifs by fractures and the occurrence of the separated fragments many metres apart.

Finally, the age of successive traditions of petroglyphs has been established through several direct dating methods, including colorimetric sequencing of patinae. All these factors are in agreement with the finding that the rock art dates from between 9000 years ago to the recent past, and the approximate age of each individual motif can be roughly estimated on the basis of the chronological framework currently available.

The scientific dating by Bednarik and Khan (2002, 2005) and various analyses of Jubbah Lake palaeo-soils (Gerrard et al. 1981; Petraglia et al. 2011, 2012; Jennings et al. 2013)



pertain. The former provides age estimates for selected key motifs and the latter offer palaeoenvironmental information broadly relatable to the rock art's iconographic content.

#### **e) Protection and management requirements**

Both Jabal Umm Sinman at Jubbah and Manjor and Raat at Shuwaymis are well managed within the legal protection system provided by the Department of Antiquities and Museums. The overriding concern of protection and management of the Hail rock art properties is not just to ensure, but to virtually guarantee the preservation of the Outstanding Universal Values of these properties over time. The specific long-term expectations are that in addition to the already secured physical and legal protection of the petroglyphs, there will be a program in place for monitoring their precise condition, especially in terms of effects of increased visitation and natural deterioration.

It is proposed to extend the management and protection of the sites by preparing for risks caused by increased visitation; continuing constructive collaboration with the key stakeholders, the local municipalities; improving visitor facilities and infrastructure; and the improvement of staff expertise.

Of particular importance is the establishment of a comprehensive monitoring system of key indicators measuring the state of conservation of the sites. It is acknowledged that the challenges, especially of a major increase in visitor numbers, may not be readily predictable for the long term, and may demand significant adjustments to the Management Plan. While there are no foreseeable threats to the authenticity or integrity of the attributes engendering Outstanding Universal Value, adjustments to management practices may become necessary in the future.

The Management Plan submitted with this nomination

sets out the general parameters of managing the properties, but it will remain flexible to accommodate any new requirements deriving from the findings of the monitoring program. Various aspects are set out in subsequent sections below, including the pressures arising from development and environmental factors (see 4.b.i and 4.b.ii), the projected level of visitation (4.b.iv), the available legislative protection (5.b) and the means of implementing protective measures. It is relevant to emphasize that the two properties and most of the surrounding desert zones are government-owned and administered land, and that both sites have enjoyed very effective physical protection for several years already. They have been enclosed in substantial and extensive steel fences totalling 14 km length, and a system of site supervision by guards has been installed at both Jubbah and Shuwaymis (Figure 17). Therefore basic protection measures have been in place for some years and have been shown to be most effective.

The managing authority, the Saudi Commission for Tourism and Antiquities, possesses the required human and financial resources to continue managing these monuments most effectively. It has at its disposal adequate legislative means, the political will and support to discharge its duties to the best standards, and a long-term commitment to the protection and preservation of properties that are entirely under its executive control. In this sense it is in a far better position than State Parties in countries where various agencies share the management of immovable cultural heritage. The administrative structures in the Kingdom of Saudi Arabia are highly centralized and effective, and the commitment of the SCTA, representing the State Party, to the long-term protection, preservation and effective management of the nominated properties is beyond question.

## **4. STATE OF CONSERVATION AND FACTORS AFFECTING THE PROPERTY**

### **4.a Present state of conservation**

The sites of Jabal Umm Sinman, Jabal al-Manjor and Jabal Raat have been preserved in excellent condition under the custody of the Department of Antiquities and Museums, now under the care of the Saudi Commission of Tourism and Antiquities (SCTA). They are fenced by steel structures, debris has been removed and guards have been posted to look after both site complexes. Minor vandalism has occurred on just a few of the Umm Sinman panels before the area was secured. The effects of natural deterioration are relatively limited, owing to the low precipitation and the high

ambient atmospheric pH that characterize most arid regions in the world. Aeolian erosion, by the effects of air-borne quartz sand, does occur, but it is limited to low elevations that are usually free of rock art, and microscopy has shown it to be of comparatively low effect. The principal weathering process is through the removal of interstitial colloid silica, leading to granular exfoliation. However, on most surfaces this process proceeds very slowly, and in particular it seems to be effectively inhibited where adequate patination, probably stabilized by silica, has been established. On such surfaces it is clear that no significant deterioration

has taken place in more than 6000 years, and it would be reasonable to expect that, in the absence of any significant changes in climatic and atmospheric conditions, these petroglyphs can survive several more millennia — provided that anthropogenic (humanly caused) impairment can be avoided. This would include direct threats, essentially from visitation, and indirect, specifically through acidification of the atmosphere. Of particular importance seems the absence of capillary moisture, probably attributable to the extremely low aquifer level.

These factors already establish the basic parameters of effective management practices for the site complexes. Jabal Umm Sinman at Jubbah and Jabals al-Manjor and Raat at Shuwaymis are all located in the deep desert and are naturally protected by the desert environment and the relative inaccessibility to humans. That is indeed the main reason for the pristine preservation of the Shuwaymis properties: so far they were visited so rarely by sightseers that no damage was incurred. Similarly, the resident Bedouin have treated the sites with respect, and it is the policy of SCTA to involve them in research and to impress upon them that the graves in the area are those of their own ancestors, and that the rock art is the work of their distant forebears. This policy has been found to be most effective. These properties are the largest protected and best-preserved rock art sites not only in the Arabian Peninsula, but in the entire Middle East. Indeed, in proportion to the age of some of their rock art, they are arguably among the best preserved rock art outside of deep limestone caves. The boundaries and perpetual integrity of the sites are very well secured and no vandalism or illegal entry has been possible for some years.

#### **4.b Factors affecting the property**

The sites and the area around them and nearly all surrounding lands are the property of the State and there is now no danger of any kind of human activities or other impact on the sites, with the exception of natural disasters outside of human control. Nevertheless, the rock art panels do need physical preservation. This applies especially if there arises a need to cater for visitors at carefully selected sites, which might involve the installation of walkways, viewing platforms, interpretation material and visitor books. Effects of natural factors such as wind and rainwater erosion, diurnal temperature differences and unloading stresses have created some deterioration of the rock surfaces but in an overall perspective the sites are in excellent condition.

One extended Bedouin family, consisting of a patriarch and less than 25 family members, has traditionally lived in the buffer zone of the Shuwaymis property. Their semi-permanent camp, mostly of tents, is located about 1 km from Jabal Raat, within the nominated buffer zone. The family is most cooperative and regards the rock art as its own ancient patrimony. Their presence on the land within visual range of the rock art sites is considered to be of benefit

to the protection of the property. It would be impossible to approach the sites without their noticing. The family derives its livelihood from camel herding, most of their animals graze in the upper reaches of Wadi al-Mukhayet.

The oasis town of Jubbah has approximately 12,000 inhabitants. It consists entirely of single storey buildings, which include about 100 to 150 traditional mud-brick buildings. There are no people living within the buffer zone or the nominated rock art core zone of the Jubbah property.

##### *4.b.i Development pressures*

The sites of Jabal Umm Sinman, Jabal al-Manjor and Jabal Raat are located far away from any industrial, agricultural or mining areas and hence experience no danger of any kind of vandalism, destruction or damage by this or any other development. The buffer zone at Jubbah is well protected and the nominated rock art reserve is fenced in. The land is generally the property of the State.

Consequently the only pressure from development that can be envisaged for the future is that arising from tourism. At present tourism at Jubbah is fairly minimal and almost non-existent at Shuwaymis. If visitation increases significantly it will be necessary to install paths for visitors, as well as other access and interpretation facilities. This may also necessitate the erection of temporary shade structures and possibly water points along paths. It will then be incumbent upon the managing authority to employ best-practice procedures for such work, modelled on rock art properties elsewhere in the world and employing minimal visual and environmental impact methods.

##### *4.b.ii Environmental pressures*

Paradoxically, climate change and the further desertification it is likely to engender would be of benefit to the rock art, because it is precisely the highly arid environment that has facilitated its survival so far. Therefore no danger is anticipated for the Outstanding Universal Values from environmental pressures. Industrial pollution would present such danger, but there is no indication of the establishment of polluting industries in the entire region.

##### *4.b.iii Natural disasters and risk preparedness*

Although depressions and clay-pans between the sand dunes may hold shallow water for a few days after heavy rains, actual flooding as such does not occur in the region. Moreover, all rock art occurs at elevated locations. Wildfires are an impossibility in these deserts because the vegetation is far too sparse. Earthquakes and volcanic eruptions are a realistic possibility, especially at Shuwaymis, but there has been no volcanic activity for many millennia, so the risk is extremely low. If such events were to occur they might lead to the dislodgement of several more large blocks. In the absence of severe seismic activity during historical times no contingency plan has been designed in that respect. The sites

are located in the central part of the Arabian plate where none of the epicentres of the 358,214 seismic events recorded from 1963 to 1998 occurred.

#### 4.b.iv *Responsible visitation at World Heritage sites*

There are currently no plans for permitting or encouraging large-scale international visitation of these monuments. It is anticipated that there will be mostly domestic tourism, although it must be acknowledged that some level of international visitation will be unavoidable if the properties are listed as World Heritage sites. However, in view of the remoteness of the sites only the most determined visitors are expected to reach them. It is planned that the new museum and rock art centre in Hail will become the main focus of public attention, soaking up a significant part of the anticipated tourism by providing high-quality facsimiles of rock art. Moreover, vehicular traffic up to the sites will not be permitted, access will be by walking, horse carts or on camels, which will suppress dust development at the sites and ensure that only the most intrepid visitors will be privileged to see the actual rock art sites.

At both Jubbah and Shuwaymis the sites are sufficiently spread over an open area to realistically receive hundreds of visitors each day. At present the number of visitors is small due to the remote locations and lack of proper transportation facilities. It is reported to number about 4000 per year at Jubbah, and so far only a few hundred per year at Shuwaymis. At the latter site all along the access dirt roads to most of the rock art localities, protective signs are being posted and the buffer zone is indicated by large white concrete blocks spaced 40–50 m apart. Official tourist guides

are available on request. Due to the sandy and rocky terrain of the area there is no danger of any deleterious effect by uncontrolled visitors. Some seasonal bushes grow in the rainy season, which provides only low rainfall annually, and these die with the arrival of summer. Therefore there is little impact of visitors on fauna or flora.

A 40-km-long road is currently under construction at the cost of 37 million riyals, joining the village of Shuwaymis to the interpretation centre at the entrance to the buffer zone, which will facilitate the transport of tourists to visit the sites of Jabal al-Manjor and Jabal Raat.

#### 4.b.v *Number of inhabitants within the property and the buffer zone*

There is no habitation in the site areas or the buffer zone at Jubbah. The nearest village of Jubbah at Jabal Umm Sinman is away from the site, separated by a road as buffer zone and an iron fence around the site. Jabal al-Manjor and Jabal Raat are located within a substantial buffer zone of desert, 40 km from any town or village. In the vicinity of the sites there is no settlement other than the semi-permanent Bedouin camp of about 25 people, located within sight of both Manjor and Raat but outside the nominated core area.

Estimated population located within:

Area of nominated property \_\_\_\_\_ 0 \_\_\_\_\_  
Buffer zone \_\_\_\_\_ 25 \_\_\_\_\_  
Total \_\_\_\_\_ 25 \_\_\_\_\_

## 5. PROTECTION AND MANAGEMENT OF THE PROPERTY

### 5.a **Ownership**

Jabal Umm Sinman, Jabal al-Manjor and Jabal Raat are located in the north of the Kingdom and come under in the Governorate of the Hail region. These are government properties and are protected zones under national law that satisfy all key requirements for effective long-term management and protection of the sites of Outstanding Universal Values. The protected sites are managed by a competent, well equipped staff that has ample monitoring and enforcement capabilities, and is adequately backed by legal mandates and regulations. There are antiquities laws and regulations imposed by a Royal Decree in the Kingdom that prohibit any digging, excavations or damage to the heritage sites in the Kingdom. There is a museum and antiquities office in Hail where the museum staff and its director are responsible for the protection and management of rock art sites and all antiquities of the Hail region.

### 5.b **Protective designation**

A Royal Decree No. M/26 dated 23/6/1392 H (1972 AD) was issued over 40 years ago, and through the Resolution by the Council of Ministers No. (78) dated 16/3/1429 H (2008 AD). The properties are managed by the Saudi Commission for Tourism and Antiquities (SCTA).

Royal Decree No. M/26 contains the following relevant Articles:

Article (8): Movable and immovable antiquities and archaeological sites existing in the Kingdom shall be considered government property.

Article (12): When planning development, expansion and improving villages and cities, preserving archaeological sites shall be considered. Planning projects in archaeological sites shall not be approved unless having the approval of the Antiquity Directorate which shall determine the archaeological areas and inform the

city planning body thereof.

Article (14): The Antiquity Directorate in association with relevant departments of land surveys shall determine archaeological hills, buildings and sites close to populated areas in order to secure them from being inhabited.

Article (22): The Antiquity Directorate alone shall be responsible for maintaining and restoring registered immovable antiquities in order to preserve them.

Article (23): Registered archaeological land shall not be used for storage. No cemeteries, buildings or irrigation system shall be placed, or planting or any of trees removed that cause change to the land's feature without a license from the Antiquity Directorate. Remains of the historical buildings and ancient ruins shall not be used nor any sand or rock shall be removed from archaeological sites without the written approval of the Antiquity Directorate.

Article (55): The Antiquity Directorate is the only body which shall have the right to excavate and investigate for antiquities in the Kingdom. Commissions, scientific associations and archaeological delegations shall have the right to undertake excavations with a license according to these regulations.

Article (57): Excavation license shall not be issued for associations and scientific commissions unless proven to be qualified both financially and academically.

Article (59): Commissions, associations and delegations licensed to carry out excavations shall comply with the following:

- c) Not to remove any part of the archaeological building unless approved by the Antiquity Directorate.
- f) Provide detailed scientific report valid for publication regarding the results of the excavation in a one-year-period following the end of each season.
- g) Submit the discovered movable antiquities at the end of each season to the Antiquity Directorate and undertake the expenses of wrapping and transporting to the specified location, provided that antiquities are not removed from the excavation location without an approval from the Antiquity Directorate.

Article (65): All discovered antiquities found by the commissions, associations and delegations shall be of the government properties and shall not be transferred to others.

### 5.c Means of implementing protective measures

The nominated rock art properties are under the jurisdiction of the provincial SCTA office in Hail, which operates under the supervision of the SCTA head office in Riyadh. On the ground protection of the Jubbah site complex is in the hands of the staff already operating there, which completely controls access to the sites. Similarly site guards will be installed at Shuwaymis once the road and the interpretation centre have

been completed. Visitors will only be permitted to enter the nominated zones under the supervision of the designated site guards, and will be required to strictly comply with their directions.

Records will be kept of daily visitor numbers and of the composition of groups. The operation of site visitation practices will be subjected to regular review by the directorate of the SCTA office in Hail, in consultation with the Riyadh office.

The actual process of legal protection involves a report by a site guard or indeed any citizen about any infringement of the laws detailed in 5.b above, most especially any interference with or defacement of a rock art panel, made to the local police. This has resulted in the apprehension of the responsible parties and subsequent processing by the courts. Local Bedouin tribesmen have also become involved in protecting the rock art and have reported misdemeanours to their sheikh or directly to the police, and people defacing rock art have been prosecuted under the existing legislation. This process has already resulted in significant adjustments to public attitudes.

### 5.d Existing plans related to municipality and region in which the proposed property is located

The municipalities of Jubbah and Shuwaymis have no jurisdiction over the management of the rock art properties. However, they have both been extensively involved in discussions and consultations with the SCTA, and both are highly supportive of the serial nomination. Jubbah municipality will not permit the construction of buildings that are more than one storey high, and a hotel to be established south of Jabal Umm Sinman will consist of Bedouin-type tents. Recently the municipality became concerned over the run-off water from the mountain during heavy rains and proposed to construct a retaining wall of several kilometres length. The SCTA suggested a less obtrusive reinforced dam structure and the city council readily acquiesced. The dam designed to drain storm waters is currently (late 2013) being built. Thus the municipal authority has been most accommodative to suggestions by the SCTA, and this will also apply to future changes to the town, building permits and road access.

Similarly the Shuwaymis municipality authority is most cooperative and supportive, having already gained the advantage of securing an excellent road as a result of the attention given to the rock art properties. Both municipalities would rightly entertain plans of gaining economically from the nomination of the sites, through securing employment of their citizens in the management of the sites and through tourism. However, it needs to be emphasized that SCTA plans to limit tourism, especially international tourism: from its perspective the two properties are not nominated to secure any significant economic benefit from tourism. Rather, the primary objective of the State in this serial nomination is the prestige to be gained, and the improved public appreciation of the Kingdom's ancient cultural heritage. Thus the principal purpose of this



nomination is not to secure large-scale tourism, but to instil in the nation a greater understanding of the importance of its immovable cultural heritage through the international recognition engendered in World Heritage listing.

A Provincial Tourism Plan for the Kingdom of Saudi Arabia was completed in 2002, and a plan specifically for Hail was prepared in 2004. The latter refers essentially to the natural environment and landscapes and to flora and fauna. It also mentions historical and archaeological sites, including rock art, but states that there is not a single *outstanding* attraction to serve as a focus of tourism development. It is proposed that the new Hail Museum and its unique rock art centre, together with the protected rock art properties can serve as such a focus.

The Hail tourism plan recommends the establishment of tourism facilities at Jubbah and Shuwaymis and the development of community-based tourism, eco-tourism and Bedouin camp visits. Apart from the Management Plan for the two rock art properties (see Annex 1) there are no existing conservation, regional or local plans with a bearing on the protection and preservation of the Jubbah and Shuwaymis, which are entirely the responsibility of the SCTA.

### 5.e Property management plan or other management system

The management plan submitted with this nomination considers the long-term development, preservation and protection of the sites, governance arrangements with the local mayors and administration of Jubbah and Shuwaymis villages, the impact on the ecosystem and aesthetics generated by the use of camels and horses to transport visitors to major attractions. The site of Jubbah is already easily accessible to the public, transport and guides are available on the site. Local community played an important role not only in preserving and protecting the sites but also takes an interest in the development of the area and welcoming visitors.

The management objectives according to the Management Plan submitted together with this serial nomination are to:

1. Protect the rock art sites and their Outstanding Universal Values in line with international best practice and guidance, and as an exemplar of good practice.
2. Engender wider appreciation and understanding of the sites in their communities and beyond.
3. Enhance the experience of visitors engaging with the sites.
4. Realize the potential of the sites to serve the tourism, economic and social development of Hail Province and the communities associated with the sites.

### 5.f Sources and levels of finance

As the rock art properties and surrounding buffer zones being submitted for World Heritage listing are all State properties, all the development funds are provided

by the Government. For the year 2013, a budget of 700 million Saudi Riyals has been allocated to the SCTA for development projects and establishments of museums in the Kingdom.

- The site of Jabal Umm Sinman was fenced (8 km long) by steel posts and wires, at a cost of 2 million riyals in 1408 H.
- A tourist information centre was built at a cost of 2 million riyals at Jabal Umm Sinman.
- Information signs and plates are to be placed at Jubbah at a cost of 700,000 riyals.
- A new museum is under construction in the nearby city of Hail, on an area of 10,000 sq. metres, at a cost of 37 million riyals.
- For intensive survey and investigations and documentation of sites, 700,000 riyals were spent during the last three years.
- A 40-km-long road is under construction from the village of Shuwaymis to Jabal al-Manjor and Raat at a cost of 37 million riyals.
- A 6-km-long fence was erected around Jabal al-Manjor and Jabal Raat at a cost of 3 million riyals.
- An information centre at Shuwaymis is under construction.
- There are further plans to fence the entire area of Jabal al-Manjor and Jabal Raat for which a proposal of several million riyals is under approval by the finance department.

These details show that the levels of financial support for the project are more than adequate and would be considered most generous in most countries.

#### 5.f.i Political support

King Abdullah bin Abdulaziz al-Saud and Prince Saud bin Abdulmushin bin Abdulaziz al-Saud, the Governor of Hail region, are keenly interested in preserving and highlighting the cultural heritage of the country and the government provides a substantial financial budget for the development and safeguarding of the Jubbah and Shuwaymis rock art sites as the common heritage of humanity. The local people understand the importance and value of the sites while the Mayors of Jubbah and Shuwaymis provide all the facilities to protect, preserve and develop the site as a tourist attraction.

The SCTA, headed by Prince Sultan bin Salman, is the motivating centre for tourism and antiquities that works in close partnership with various stakeholders to achieve the vision and mission of tourism in the Kingdom through the creation of sustainable tourism development.

The Saudi Council of Ministers issued Resolution No. (9) on 12/1/1421H (16/04/2000) to establish the Supreme Commission for Tourism (SCT). The resolution came to emphasize tourism activity as one of the productive sectors in catering to Saudi tourists within the country while at

the same time increasing opportunities for investment, development of human resources and expansion and creation of new job opportunities for Saudi citizens.

Subsequently, in view of the importance of the antiquities and museums, another resolution by the Council of Ministers No. (78) dated 16/3/1429H (24/3/2008) was issued to integrate the Antiquities and Museums sector into the Supreme Commission for Tourism. With this, the SCT became a body responsible for the implementation of their related tasks in addition to being responsible for tourism.

According to the resolution, the name 'Supreme Commission for Tourism' (SCT) was changed to 'Saudi Commission for Tourism and Antiquities' (SCTA), with the confirmation that domestic and international tourism is a reality that requires the formation of a national authority responsible for its planning and development owing to the distinct components of tourism in the Kingdom.

The private sector has been invited to open hotels and restaurants both at Jubbah and Shuwaymis. Tent hotels are to be established at Jubbah and Shuwaymis in the near future.

#### **5.g Sources of expertise and training in conservation and management techniques**

The staff of the SCTA is very well trained and educated in restoration and conservation of antiquities. In some cases, wherever this is required, private companies are contracted to do some technical assignments and the appropriate funds are provided by the State. Saudi archaeologists are educated and trained both inside the country and in European and American universities. There are some joint archaeological projects with foreign institutions who also trained Saudi archaeologists on the sites in various aspects of archaeology and rock art. The current Palaeodeserts Project with British archaeologists and palaeoenvironmentalists is an example of such collaboration, in this case between Oxford University and King Fahd University in Riyadh.

There are archaeological departments in many universities from where undergraduates and graduates are now working as researchers and archaeologists in the Saudi Commission of Tourism and Antiquities. In these universities they receive training in all aspects of restoration, conservation and rock art studies.

#### **5.h Visitor facilities and infrastructure**

This section describes the inclusive facilities available in the vicinity of the nominated sites for visitors and demonstrates that they are appropriate and compatible with the protection and management of the properties' Outstanding Universal Values. This includes the need for effective presentation of these values, as well as the needs of visitors and their safety. The following facilities and infrastructure are either currently available or will be provided in the near future.

##### *5.h.i Hail, Jubbah and Shuwaymis*

The village of Jubbah, facing Jabal Umm Sinman, is located about 90 km from the main city of Hail and is connected by two-way excellent paved road. There is an airport at Hail where taxis, private cars and public buses are available for Jubbah.

Hail is a green oasis with many farms and gardens and is a well-developed city with all modern facilities. There are 4 and 3 star hotels in addition to many furnished apartments available for long or short-term stays for individuals or families. Hail has many small hotels and restaurants, and also features outlets of international fast food chains and other food shops. Most importantly Hail will soon have a new museum which is expected to operate also as a rock art centre, in conjunction with Hail University.

In the village of Jubbah there are shops and a mini-supermarket as well as small food and fruit shops. A hotel of Bedouin-style tents will be established in Jubbah as well as in Shuwaymis. The nearest town from Shuwaymis is Al-Hayet, some 30 km east by excellent sealed road. Hayet has small hotels and furnished apartments, restaurants and a supermarket besides numerous smaller shops, and it is expected that larger hotels will be established there in due



Figure 18. Visitors information centre at Jubbah.

course. The sites of Jabal al-Manjor and Jabal Raat are located about 40 km west of the village Shuwaymis, which comprises currently no shops or service station. The last 40 km to the sites, on a road that is currently under construction, is devoid of any human occupation.

#### 5.h.ii Site facilities

There are guards for the safety and security of the visitors at the sites. Guides are also available on request. Publications, brochures and leaflets are currently available in Arabic and English. At present there are few visitors, about 4000 at Jubbah annually, while only a few hundred visit Shuwaymis sites due to their remote locations and lack of transportation and lodging facilities.

Information centres are being established in Jubbah (Figure 18) and at the end of the road to the Shuwaymis sites, immediately before reaching the boundary of the buffer zone. These centres will provide information about the sites and comprise ticketing facilities, first aid equipment, lavatories and guards' facilities, as well as search and rescue equipment. Guards or guides will take the visitors to the gates of the nominated core zones, unlock the gates, and guide the visitors to the rock art panels, providing explanations and ensuring appropriate conduct of all visitors.

Further site facilities yet to be decided and established will need to include formed paths through the maze of boulders, and possibly elevated ramps and viewing platforms at selected locations. It may also be decided to establish temporary shade structures and water points in appropriate locations. Concerning on-site interpretation, at Jubbah large rock slabs have been erected at the sites, consisting of local sandstone that blends in with the nearby rocks. These will be furnished with basic explanations for the visitors. A similar system is yet to be introduced at the Shuwaymis sites.

#### 5.i Policies and programs related to the presentation and promotion of the property

The World Heritage Convention requires that State parties adopt a general policy which aims to give the cultural heritage a function in the life of the community. The most important effect of World Heritage listing is that it provides to the public a measure of relative importance of the cultural content of the property in question. It is therefore imperative that programs of presenting and promoting the nominated estate be developed and implemented. Obviously this can only occur after the property has been inscribed on the World Heritage List, but it would be prudent to prepare for this event by planning a major promotion of the Jubbah and Shuwaymis sites, through the

media, the schools and public channels. In the Kingdom of Saudi Arabia, such an exercise would be most effective if, in response to successful listing, senior members of the Royal Family were to visit the sites and commented appropriately on the importance of the nation's appreciation of its earliest origins, and to honour the genius of the rock artists and their masterworks, created long before the advent of metallurgy.

Such a climate of public appreciation of the value of ancient rock art would lead to a number of desirable effects, among them an understanding of the need to preserve this heritage, to protect and conserve it, to develop scientific methods of study and preservation, and to support the relevant legal, scientific, administrative and financial measures all this involves. Ultimately such policies will foster the establishment of relevant research centres, raising the status of the immovable cultural heritage throughout the Kingdom. The achievement of World Heritage listing can in this way have far-reaching positive consequences.

To this end it is planned to develop an effective awareness-raising program for the public, with special emphasis on young people, if a positive response were to be signalled by UNESCO. The implementation of this program would coincide with the public announcements concerning listing.

#### 5.j Staffing levels and expertise (professional, technical, maintenance)

The skills required for the good management of the rock art properties relate to its presentation to visitors, to the management of these visitors, and to issues concerning the rock art's conservation. It is the latter aspect that involves the greatest need for technical expertise, which is currently of limited scope in Saudi Arabia. Over the past decades rock art conservation has developed into a sophisticated discipline that is engaged in arresting or alleviating a range of natural deterioration factors, such as hydrology, physical weathering, biological weathering factors as well as anthropogenic effects (Bednarik 2007: 85–114).

The scientific and technical skills involved in rock art conservation will need to be imported and taught, and Saudi specialists will need to be trained in this field. This is realistically possible and the SCTA is committed to establishing a domestic technical knowledge and skill base of modern rock art conservation and management practices, to ultimately manage not only the properties nominated here, but the vast rock art heritage of the Kingdom generally. This will involve the selection of suitable candidates to undergo specialized training, either in Saudi Arabia or abroad, preferably the former.

## 6. MONITORING

For monitoring of the cultural resource, the Outstanding Universal Values of the Hail region rock art sites, to be effective it is essential that a baseline be established for the time of the properties' listing. This is proposed to be instituted on the basis of the following criteria.

### 6.a Key indicators for measuring state of conservation

Since it would be impracticable to expect that each of the many thousands of petroglyphs at the rock art site complexes could be individually monitored, it will be essential to establish a representative number of monitoring stations across the sites. These need to be carefully selected, ensuring that all major rock art phases, rock types and represented morphological circumstances and weathering states are somehow accounted for. The criteria to be taken into account include particularly the Outstanding Universal Values of the sites, and the entire enterprise of monitoring is intimately connected with, and prelude to, conservation intervention when this might become necessary. It is proposed to select permanent monitoring stations on the following basis:

1. Individual petroglyphs of the Neolithic, Chalcolithic/Bronze Age, Iron Age/Thamudic inscription, and historical images or Islamic inscription (i.e. of significantly different ages).
2. Where differences in sandstone facies are detectable, these need to be accounted for.
3. Monitoring stations need to include fully exposed and protected locations (under roofs).
4. Fully patinated, partially patinated and unpatinated sampling sites will need to be included.
5. In addition to monitoring stations of petroglyphs, some will be located away from decorated areas, and they will include areas of obviously active granular exfoliation.

A simple example of organizing the monitoring program at each of the two properties is given in the following table:

Each monitoring station will measure from one to a few square millimetres in size and will be identified in such a way that it can easily be re-found. Monitoring will be by binocular light microscopy and records in the form of microphotographs will be taken by digital field microscope. Special attention will be given to deterioration or changes in mineral accretions, degree of inter-granular porosity and the removal of colloid silica. Another variable to be observed closely will be differences between sites immediately next to visitor tracks and sites not accessed by visitors.

Monitoring studies need to be conducted at regular intervals to be meaningful. In view of the rock art's relatively stable condition, as evidenced by the great antiquity of some of it, it is proposed that monitoring be undertaken once every five years.

### 6.b Administrative arrangements for monitoring property

Monitoring of the condition of the property is fundamental to designing informed conservation procedures, but to be meaningful the records need to be kept safely over long periods of time. The Saudi Commission for Tourism and Antiquities will be responsible for monitoring, for storing the data and for designing and implementing conservation measures. The responsible person, in the first instance, will be the Director of the SCTA office in Hail, Saad al-Rawsam, Tel. 06/5331684, Mobile 0505165317.

### 6.c Results of previous reporting exercises

There has been no previous monitoring or reporting of the detailed conditions of both rock art properties. Listing of the Jubbah and Shuwaymis properties would provide great momentum to the introduction of such practices in Saudi Arabia because it would reinforce the need for developing such forms of formal scrutiny, and for producing condition reports generally in cultural heritage management.

Survey date .....	Attribution of petroglyph				
	Neolithic	Chalcolithic/Bronze Age	Iron Age	Historic	Control
Protected weathered					
Open weathered					
Protected unweathered					
Open unweathered					

Note: patination state to be noted for each sample, from 0 = unpatinated to 10 = fully patinated.

Table 3. Example of organizing monitoring program.



## 7. DOCUMENTATION

### 7.a Photographs and audiovisual image inventory and authorization form

See Annex 2 for details.

Id. No.	Format (slide/print/video)	Captions	Date of Photo (mo/yr)	Photographer	Copyright owner (if different than photographer/director of video)	Contact details of copyright owner (Name, address, tel/fax, and e-mail)	Non exclusive cession of rights
1-45	Prints	As per Annex 2	2013	Dr Majeed Khan	SCTA	Diplomatic Quarter Tel: 011/8808622 - 011/8808855 Fax: 011/8808625 P.O. Box 66680 Riyadh - Zip Code 11586 E-mail: info@scta.gov.sa	Yes for all images

Table 4. Photographs inventory and authorization form.

### 7.b Texts relating to protective designation, copies of property management plans or documented management systems and extracts of other plans relevant to the property

Other than the Management Plan for Jubbah and Shuwaymis (Annex 1) there are no texts being submitted.

### 7.c Form and date of most recent records or inventory of property

Jabal Umm Sinman at Jubbah and Jabal al-Manjor at Shuwaymis are being intensively investigated and most of the petroglyph and inscription localities are registered and properly documented. A computer record of these sites is available on the websites of the National Museum and Saudi Commission. Also, the hard copies of all records of registered sites and petroglyphs are safely stored in the Survey and Excavation Centre, with original digital photographs, maps and charts etc. available for researchers and students.

### 7.d Address where inventory, records and archives are held

Saudi Commission for Tourism and Antiquities in Riyadh

Diplomatic Quarter  
Tel: 011/8808622 - 011/8808855  
Fax: 011/8808625  
P.O. Box 66680  
Riyadh - Zip Code 11586  
E-mail: info@scta.gov.sa

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## 8. CONTACT INFORMATION OF RESPONSIBLE AUTHORITIES

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### 8.b Official Local Institution/Agency

Mr Saad al-Rawsam, Director of Antiquities and Regional Museum in Hail, is responsible for the management of Jabal Umm Sinman at Jubbah and Jabal al-Manjor and Jabal Raat at Shuwaymis.

Tel: 06/5331684  
 Mobile: 0505165317

Mr Mubarak Salama, Director of Tourism Sector, is responsible for the development of tourism in the Hail region.

Tel: 06/5338855-111

The Saudi Commission for Tourism and Antiquities, Government of Saudi Arabia, controls rock art and archaeology in all regions, including Hail.

### 8.c Other Local Institutions

The two rock art sites are the property of the government of Saudi Arabia. There are no private stakeholders. The Saudi Commission for Tourism and Antiquities controls all the archaeological sites, museums and rock art sites all over the country. However, local tribal Sheikhs and Mayors cooperate in the development, monitoring and preservation of the sites.

1. Ahmed al-Shidi is the Mayor of Jubbah - Tel. 06/5412279
2. Khalid Abdullah al-Tamimi, Mayor of Shuwaymis - Tel. 056979665

### 8.d Official Web address

There is currently no webpage specifically dedicated to the nominated properties. However, it is planned to develop such a page on the site of the National Museum of Saudi Arabia, the location of which is:

***<http://sauditourism.sa/ar/Pages/default.aspx>***

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### 8.e Nomination file prepared by:

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2. Dr Majeed Khan, Rock Art Specialist and SCTA Consultant
3. Mr Robert G. Bednarik, Convenor, International Federation of Rock Art Organizations, Australia
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6. Mr Jamal Omar, Director General, Research and Studies Centre, SCTA.



## 9. SIGNATURE ON BEHALF OF THE STATE PARTY

.....  
Professor Dr Ali I. Alghabban, Vice President, Saudi Commission for Tourism and Antiquities

**ANNEX 1:** Management plan for Jabal Umm Sinman, Jubbah, and for Jabal al-Manjor and Raat, Shuwaymis.

**ANNEX 2:** Photographs of rock art and archaeological sites.

**ANNEX 3:** List of rock art sites with reference maps.

