



الهيئة العامة للسياحة والآثار

Saudi Commission for Tourism & Antiquities

scta.gov.sa

ROCK ART IN THE HAIL REGION OF SAUDI ARABIA MANAGEMENT PLAN



Table of Contents

Table of Contents.....	2
List of Figures	3
Executive Summary.....	4
Introduction.....	6
Introduction.....	6
Aims of the Management Plan	6
Remit (site boundaries)	6
Methodology	6
The team	6
1 Description and History of the Sites.....	6
1.1 Geographic location, description and site boundaries	6
1.2 Geology and climate	8
1.3 Archaeology and History.....	8
1.4 Landscape	13
2 The Sites Today	15
2.1 Ownership and management.....	15
2.2 Excavations and Archaeological investigation	16
2.3 Conservation.....	17
2.4 Social and economic context	17
2.5 Visitor facilities	18
2.6 Tourism in Hail Province	20
3 Key Stakeholders and Interest Groups	20
3.1 Stakeholders.....	20
3.2 Process of consultation.....	21
4 Significance	21
4.1 Statement of Significance	21
4.2 Values associated with the sites	22
5 Management Assessment.....	22
5.1 Sensitivities and threats.....	23
5.2 Opportunities	23
6 Vision and Objectives	24
6.1 Aim.....	24
6.2 Rationale and approach.....	24
6.3 Management objectives/ goals	25
6.4 Management team/ structure	26

7	Management Strategy and Policies	26
7.1	Landscape, context and setting policies	26
7.2	Land-use planning policies	27
7.3	Archaeology, research and conservation policies.....	28
7.4	Visitor management policies	29
7.5	Presentation and interpretation policies.....	30
7.6	Education policies	31
7.7	Tourism policies	32
7.8	Implementation and review policies.....	33
8	Action Plan.....	33
8.1	Implementing management policies	33
8.2	Action plan.....	34
	Sources consulted for the Management Plan.....	44
	Appendix 1: Reference Bibliography.....	45

List of Figures

- 1.1 Jubbah Jabal Umm Sinman core area (yellow) and buffer zone (green line)
- 1.2 Shuwaymis Jabal al-Manjor and Jabal Raat core area (green) and buffer zone (yellow)
- 1.3 Rock art at Jubbah
- 1.4 Rock art at Shuwaymis, reversed by rock fall
- 1.5 Landscape setting and character of Jabal Umm Sinman
- 1.6 Landscape setting and character of Jabal al-Manjor and Jabal Al Raat
- 2.1 Municipal park at the site entrance in Jubbah
- 2.2 Bedouin encampment in Wadi Al-Mukhayet, Shiwaymis
- 2.3 Jubbah, Jabal Umm Sinman, site boundary to northeast
- 2.4 The present day settlement of the Jubbah oasis is located in the indent of the Paleolithic lake
- 2.5 Decaying mud brick building in Jubbah in close proximity to the privately owned Al Naif Museum
- 2.6 Visitor centre at Jubbah
- 2.7 Display of rock art sites in Hail Museum
- 2.8 Interpretation panels at Jubbah
- 5.1 Much of the rock art is located on uneven terrain and at a height
- 5.2 Bird droppings, like vegetation are minimal at the sites
- 5.3 The growth of Jubbah town will need to be managed so as not to impact on areas of potential archaeological significance that lie beyond the buffer zone
- 6.1 Overview of approach to visitor management and interpretation of rock art sites in Hail Province

Unless otherwise stated all photographs are by Aylin Orbasli.

Executive Summary

This management plan for The Rock Art in the Hail Region of Saudi Arabia has been prepared as part of the nomination of the rock art sites for inscription on the World Heritage List. The two rock art sites of Jabal Umm Sinman in the town of Jubbah and Jabal al-Manjor and Jabal Raat near Shuwaymis are located in the Hail Province of the Kingdom of Saudi Arabia.

The Jubbah oasis in the southern part of Great Nafud Desert, 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. The largest of these mountains is Jabal Umm Sinman, rising to a height of almost 450 m above the surrounding desert. The present town of Jubbah has been established on the sediments of the paleolake on its lee side. 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 to the significant environmental changes. 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.

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 has resulted in the location of hundreds of rock art panels, several stone structures and typical stone objects of the Neolithic era.

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.

The aim of this management plan is to provide an operational framework for the protection of the rock art sites of Hail Province, most notably the sites of Jabal Umm Sinman (Jubbah) and Jabal al-Manjor and Jabal Raat (Shuwaymis).

The objectives of the management strategy are to:

1. Protect the rock art sites and their outstanding universal value in accordance with international good 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 and the rock art of the Hail Region.
4. Realise the potential of the sites to serve the tourism, economic and social development of Hail Region and the communities associated with the sites.

Both the sites are well protected by their geographic location, prevalent climatic conditions, legally through Royal Decree No. M/26 dated 23/06/1392H, protective fencing and site guards appointed by the Saudi Commission for Tourism and Antiquities (SCTA).

The following management policies are proposed for implementation by the SCTA, their office in Hail and other regional partners towards fulfilling the management objectives identified:

Landscape, context and setting policies

L1: The site zones recommended as core zones for the World Heritage nomination will be fully protected.

L2: Areas of archaeological and potential archaeological significance should be established and included in the buffer zones.

L3: Key views of the rock art sites and significant views from the sites will be protected.

L4: The collective value of rock art sites and their landscape settings in Hail Province will be recognised as a cultural landscape.

Land use and planning policies

P1: Building and infrastructure developments taking place within the identified view shadows will not unduly impact on

the setting and landscape values of the sites.

P2: Where the buffer zone extends into an existing settlement as at Jubbah, all development within this zone and in close proximity to its boundary will conform to strict design guidelines.

P3: Where the buffer zone is open land, any proposed structures within this zone will conform to strict guidelines in terms of design, materials and impact.

P4: Any development work within a buffer zone will be preceded by archaeological investigations.

P5: All major structures, paved surfaces and services will be restricted to the periphery of the sites and conform to established design guidelines.

P6: Only structures of a temporary nature, which are fully reversible and are in the interest of protecting the sites' outstanding universal value will be permitted within the site boundaries.

P7: Vehicular traffic will not be permitted within the site boundaries.

Archaeology, research and conservation policies

A1: A province-wide 'rock art' database has been established to share all scientific information pertaining to rock art sites in the province.

A2: Archaeological excavations at the sites in partnership with Saudi Universities and international institutions will be continued.

A3: Secure and suitable storage facilities for archaeological material and finds that result from excavations will be provided.

A4: A state-of-the-art research centre for Rock Art Studies will be established in partnership with Hail University.

A5: The rock art will continue to be protected in accordance with Royal Decree No. M/26 through existing measures, considered visitor access, management and regular monitoring.

A6: Measures to improve protection and safeguarding of areas of known and potential archaeological significance will be implemented.

A7: A monitoring program as per the WHS nomination (6.a) will be established and implemented.

Visitor management policies

V1: Hail Museum will be developed with major exhibits to become the 'gateway' to the World Heritage Site and rock art in the province.

V2: A visitor complex in Jubbah town will act as the main hub for visitors.

V3: Visits to Jabal Umm Sinman will be by appointment (timed tickets) and by guided tours in small groups only.

V4: A locally managed small rest point/visitor reception close to Jabal al-Manjor and Jabal Raat, at the end of the metalled road and immediately outside the buffer zone, will provide services to researchers working at the site and visitors.

V5: Visits to Jabal al-Manjor and Jabal Raat will be by ap-

pointment/permit under the control of the SCTA and only and in small guided groups.

V6: The opening up of smaller and accessible rock art sites to visitors will be considered where sensitive and sustainable interventions are possible.

Presentation and interpretation policies

I1: A province-wide rock art interpretation plan will form the framework for on-site interpretation and a coordinated approach to the key messages, as WHS nomination (5.i).

I2: State-of-the-art and engaging displays that will appeal to a broad non-specialist audience will position Hail Museum as a 'gateway to the WHS'.

I3: The visitor complex located in Jubbah town will convey the links between the rock art and life in the oasis.

I4: Visitor reception points will provide information on each site and give an introduction to the visit.

I5: Local site guardians will be the main point of information and guides at the sites.

I6: Interpretation material and signage within the site boundaries will be kept to a minimum.

Education policies

E1: Through the proposed Centre for Rock Art Research and other initiatives the educational potential of the sites will be actively promoted.

E2: A strong educational component will be developed as part of the interpretation of the sites and rock art in Hail Province.

E3: A system of local rangers (guides/guards) developed in partnership with the local Bedouin communities living in close proximity to the sites, will form the core of site protection and visitor services offered at the site.

Tourism policies

T1: Hail Museum will be the centre for the launch of the Rock Drawings of Hail Province World Heritage Site.

T2: Longer term tourism strategies for the province will position the WHS as a significant asset for Hail Province.

T3: Tourism development projects in proximity to the rock art sites will be sensitive to the significance of the sites and their natural setting.

The responsibility for implementation of this management plan lies with the specially created SCTA directorate responsible for World Heritage Sites, in partnership with the SCTA Hail branch. Where appropriate, the implementation of the recommended management strategies will be undertaken in collaboration with local, national and international partners and institutions. The management plan is designed for the first five years of the site being recognised as a World Heritage Site. It is recommended that visitation and interest in these sites is closely monitored during this period and the management plan is regularly reviewed and adjusted accordingly.

Introduction

Introduction

This management plan for The Rock Art in the Hail Region of Saudi Arabia has been prepared as part of the serial nomination of the rock art sites for inscription on the World Heritage List. The two rock art sites of Jabal Umm Sinman in the town of Jubbah and Jabal al-Manjor and Jabal Raat near Shuwaymis are located in the Hail Province of the Kingdom of Saudi Arabia.

The site of Jubbah is situated 90 km to the northwest of the provincial capital Hail, Shuwaymis is some 250 km to the southwest close to the border with Medinah Province. Both sites are under the protection of the Saudi Commission for Tourism and Antiquities (SCTA) and the core archaeological areas are protected by extensive fences surrounding the sites. The sites and the designated buffers zones are in the ownership of the Saudi State. To date the sites have not been opened to regular visitation.

This management plan is conceived as a first step towards recognising the broader archaeological significance and impact of the sites, seeking operational means for their protection and conservation and communicating the value and significance of the sites to a broad audience, including managed opening of the sites to visitors.

The effective protection and management of rock art sites are complex in most parts of the world. They are often spread out over a wide geographical area, and may share more characteristics with an area of natural beauty than a typical cultural heritage site. The fragility and vulnerability of the rock art to a number of threats requires visitation to be carefully managed. Furthermore, like many prehistoric sites, interpretation plays an important role in explaining the significance of the sites, telling their story and 'bringing them to life'. The sites of Jabal Umm Sinman, Jabal al-Manjor, Jabal Raat and other rock art sites in Hail Province share many, but not all of these characteristics.

Aims of the Management Plan

The aim of this management plan is to provide an operational framework for the protection of the rock art sites of the Hail Region, most notably the sites of Jabal Umm Sinman (Jubbah) and Jabal al-Manjor and Jabal Raat (Shuwaymis).

The objectives of the management strategy are to:

1. Protect the rock art sites and their outstanding universal value in accordance with international good 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 and the rock art of the Hail Region.
4. Realise the potential of the sites to serve the tourism, economic and social development of Hail Region and the communities associated with the sites.

Remit (site boundaries)

The primary remit of this management plan is the two nominated sites of Jubbah and Shuwaymis and their buffer zone as determined in the nomination document that this plan accompanies (Figures 1.1 and 1.2).

It is, however, well recognised that there is a much broader wealth of rock art sites across the Hail Region, and the management proposals in part cover these others sites, as indeed the protection and management of the sites nominated as World Heritage Sites cannot be viewed in isolation from other similar sites in the region.

Methodology

This management plan has been prepared in accordance with the Operational Guidelines (2013 edition) of the World Heritage Convention, following values-based methodologies developed by the Getty Conservation Institute.

The historic and archaeological information and context are provided by the research undertaken for the justification of the sites' nomination for World Heritage Site listing and therefore reflect the nomination document.

The team

The management plan has been prepared by Dr Aylin Orbasli as a collaborative process with the Saudi Commission for Tourism and Antiquities and a small team of expert consultants including Dr Majeed Khan and Robert Bednarik; and in consultation with national, regional and local stakeholders.

1 Description and History of the Sites

1.1 Geographic location, description and site boundaries

1.1.1 Jubbah, Jabal Umm Sinman

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 (Figure 1.1).

Jubbah lies on an ancient caravan route to Jordan and Syria and is one of the largest and richest rock art sites not only in Saudi Arabia but in the Arabian Peninsula and in the Middle East as a whole. It is still the sole oasis of any size in the Nafud and supports a permanent settlement and seasonal influx of Bedouins.

Jabal Umm Sinman, a mountain that is the product of millions of years of geological processes, faces the ancient

dry lakebed at Jubbah with large numbers of well-made petroglyphs of human and animal figures, and ancient Thamudic, Arabic and early Kufic inscriptions suggesting continued use of the site for well over 6000 years. In even earlier times, Middle Palaeolithic people camped there between 50,000 and 90,000 years ago, emphasizing the significance of lakes as a resource of major importance in this desert environment at the crossroads between continents.

1.1.2 Shuwaymis, Jabal al-Manjor and Jabal Raat

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 with a parallelogram-shaped area. The surrounding buffer zone boundary proceeds from the end of the access road and the proposed interpretation centre west across the width of Wadi al-Mukhayet, and from there follows the outline of the wadi, including side valleys, tracing the outline of the plateaus, measuring about 8 km north-south and over 3 km east-west (Figure 1.2).

1.1.3 Other rock art sites in Hail Province

Rock art occurs at numerous other sites in the northern region of Hail, but 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. 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, protected by long steel fences, the patination of a zoomorph resembling an antelope was sampled for accelerator mass spectrometry radiocarbon analysis. The results remain inconclusive (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-Hayit is a small petroglyph site named Qilat al-Hissan, located on volcanic tuff containing basalt clasts. To the south of Shuwaymis village is Jabal al-Bargh. 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 +

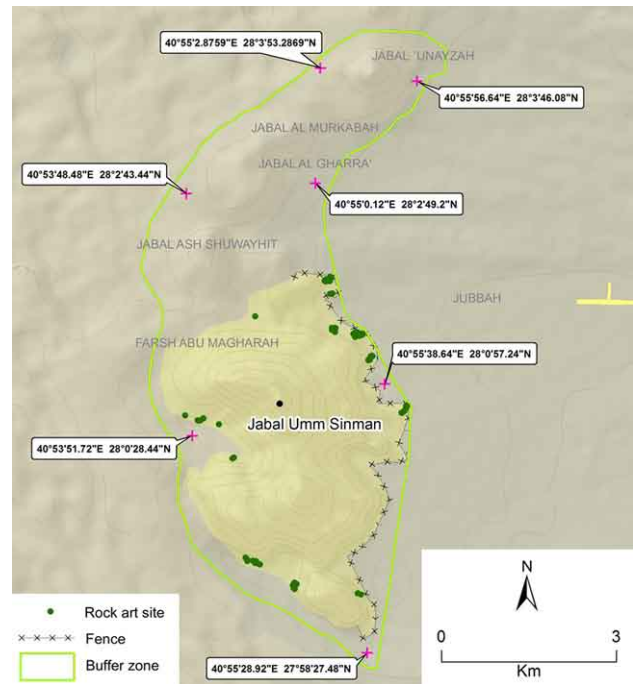


Figure 1.1. Jubbah Jabal Umm Sinman core area (yellow) and buffer zone (green line).

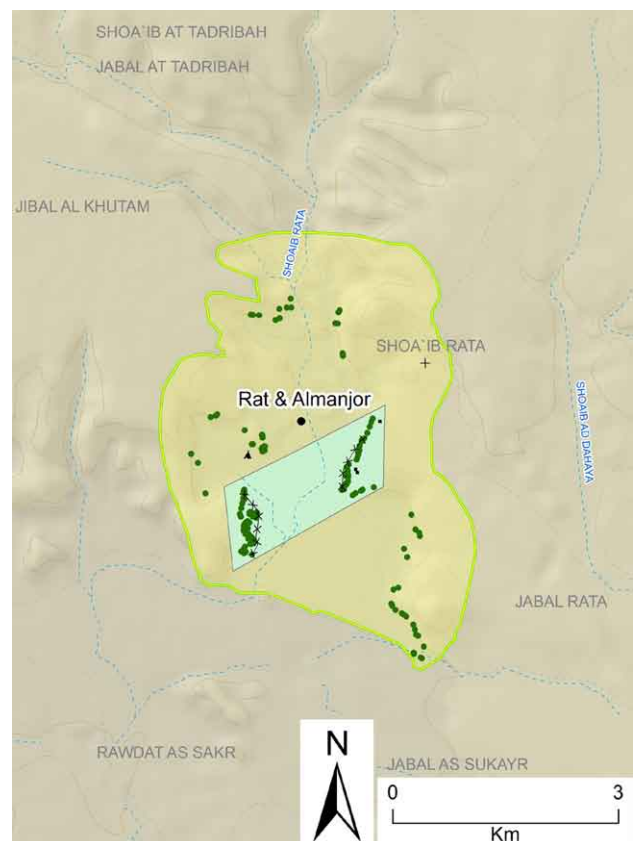


Figure 1.2. Shuwaymis Jabal al-Manjor and Jabal Raat core area (green) and buffer zone (yellow).

810 / - 600 years, which falls into the early part of the final desertification period.

1.2 *Geology and climate*

1.2.1 Jubbah

Jabal Umm Sinman is located inside the southern border of the Great Nafud desert which stretches over an area of 68,000 square kilometres of northern Saudi Arabia. The site is located 820m above sea level. The site is made up of the mount, Jabal Umm Sinman, several smaller outcrops of rock and a dry lake bed, where the present town of Jubbah is located. Any evidence of ancient settlements is likely to be covered by sand dunes. To the eastern end of the basin, the similar but smaller Jabal Ghawata range has impeded sand deposition in an area of about 8 km east-west, and 3 km north-south. Both ranges are thought to have bases of Saq sandstone and summits of Tabuk sandstone (Bramkarp et al. 1963).

The Nafud desert is a sand formation reaching up to 100m in depth in an arrow-shaped formation pointing east in the direction of the Ad-Dhana sand belt which links it to the Rub Al Khali or Empty Quarter to the south. The northern and southern parts of the desert are characterised by the 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 (Holm 1960; Breed et al. 1979).

Overall, this is a highly varied and complex geological and desert landscape, shaped by weathering caused by high temperatures and erosion caused by winds. The boulders, onto which most of the rock drawings have been carved, are horizontally stratified with an argillaceous and more readily decomposing sandstone strata, which has caused the upper layers to fall down the rock face. The vertical joint meanwhile have created pyramidal hill tops and hump-like summits caused by rain and wind erosion. The sandstone appears in a range of colours from grey-pink to light brown.

1.2.2 Shuwaymis

Jabal al-Manjor and Jabal Raat are located either side of a valley (Wadi Al-Mukhayet) that was an ancient source of running water. The site features several Pleistocene lakebeds and is characterised by volcanic and igneous mountains and hills.

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.

1.2.3 Climate of Hail Province

The climate of Hail is continental, with temperatures reaching 35-40 degrees in the summer and falling to about

10 degrees in the winter. The rainfall, not exceeding 125 mm annually but fluctuating from one year to the next, takes place during the winter season. Figures for Jubbah indicate an average 100mm of rain fall, a mean January temperature of 10.1C and mean August temperature of 31.8C. Temperatures can drop below freezing in winter and reach highs of 45 in the summer.

1.3 *Archaeology and History*

1.3.1 Overview and developmental phases

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 Jebel Umm Sinman and localities on the Jubbah palaeo-lake 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}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 palaeo-lake (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. site Nos. 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 sites. 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).

1.3.2 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 may be assumed that the tombs located on top of the hill were for the heads of the tribes, those on the second level might have been for the religious leaders and on the third level other important people. 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 these hills (Khan 2005).

At Shuwaymis the cairns are located in Wadi al-Mukhayet and in the elevated areas besides the wadi at Jabal al-Manjor. 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. 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 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 to be 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.

1.3.3 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. 9000–6000 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 begun 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 presumed to have been depicted at Jubbah includes images of cattle, long-horned oxen, deer, gazelle, oryx, ibex, lion, dog, horse, donkey, ostrich and camel. 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 early 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. in press a). There appears to be even an increase in human occupation and cultural activities

in the Jubbah and Hail areas 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 Bronze Age that



Figure 1.3. Rock art at Jubbah.

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.

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 ± 250 years BP (Liritzis et al. 2013). About 2000 camel figures are located from 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 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, are shown in 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 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 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 most of the rest of the world (Table 2).

Preliminary direct dating results from rock art and inscrip-

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	5650 – 4240	E4890 + 760 / - 650
	Anthropomorph 2	7070 – 5650	E5877 + 1190 / - 220
Jabal Ash Shuwayhit	Inscription 1	3530 – 2130	E2830 \pm 700
	Inscription 2	3530 – 2120	E2540 + 990 / - 420
Janin	'Gazelle'	Greater than 1820 \pm 50 BP	
Jabal al-Bargh	'Date palm'	3180 – 1770	E2370 + 810 / - 600
Jabal Raat	Anthropomorph 1	5660 – 4960	E5310 \pm 350
	'Ibex'	6000 – 5300	E5550 + 450 / - 250
	Anthropomorph 2	4940 – 4240	E4590 \pm 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.

tions by microerosion analysis and radiocarbon analysis, from nine sites in central, northern and far-southern Saudi Arabia.

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 Neolithic. Always fully patinated, they are strictly limited to the Hail region and have never been found elsewhere. 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.

1.3.4 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 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. Its sites consist of slopes of jumbled,

sub-angular boulders, mostly 5–10 metres in size, on which many thousands of motifs occur. Some compositions bring to mind monumental masonry work, in that the very detailed and meticulously pounded figures of one or two meters are rendered 15–20 mm deep, as relief-like figures. 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. Some of them occur entirely upside-down, and many are truncated 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. On one steeply sloping panel, 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 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-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 stone implements found by studies in many other



Figure 1.4. Rock art at Shuwaymis, reversed by rock fall.

countries around the world (Bednarik 1998). Just as Jubbah comprises a large component of Bronze Age, Iron Age 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 two 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 clear record of cultural activities at Jubbah and Shuwaymis for up to 10,000 years that ceased at about 1300 years ago with the advent of Islam and change in belief, faith and life style. Before this period of surviving rock art production, both regions were occupied for about 100,000 years, and apparently beyond that.

1.3.5 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, 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 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.

1.3.6 History of exploration of the sites

The rock art sites at Jubbah are mentioned briefly in the records and writings of several European travellers, historians and journalists who visited the region, notably

Lady Anne Blunt and her husband in 1879, Doughty in 1888, Huber in 1899, the German historian Julius Euting in 1894 and 1914, Musil in 1914, Gertrude Bell who took and published photographs in 1914 and the explorer and writer H. S. Philby in 1952.

Scientific and Archaeological investigations at the site, however, started in 1976 when the Department of Antiquities and Museums initiated a comprehensive archaeological survey of the entire Kingdom. This first survey was reported by Parr and McAdams in *Atlatl*, Volume 1 (1976). C. Clarke presented an account of the site at the Arabian Seminar in London in 1979.

A more comprehensive study and recording of the rock art at Jubbah was undertaken by the Rock Art Survey Team on behalf of the Department of Antiquities and Museums in 1986 and published in *Atlatl*, Volume 11 (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.

Research on rock art sites across the Saudi Arabia the site has been ongoing for over 30 years and has been published by Dr Majeed Khan.

1.4 Landscape

1.4.1 The landscape setting of the sites

Jubbah

The landscape of Jubbah is characterised by craggy hills with a range of capped pyramidal peaks and sand dunes of the Great Nafud desert lapping up to them. The second prominent landscape feature is of indentation of the paleolithic lake bed, in which the modern town of Jubbah is situated (Figure 1.5).



Figure 1.5. Landscape setting and character of Jabal Umm Sinman.



Figure 1.6. Landscape setting and character of Jabal Al Manjoor and Jabal Al Raat.

The urban morphology of the Jubbah Oasis is characterised by long strip plots and an irregular pattern of roads and alleys.

Shuwaymis

Jabal al-Manjor and Jabal Raat form either side of a valley with low craggy lying rock faces, and vegetation that indicates the location of river bed running through it. The environs of Jabal al-Manjor and Jabal Raat are another notable example of a highly varied desert landscape and changing climatic influences that have fluctuated considerably over the long period that it has taken the landscape to evolve. Geology has been the ever-present artist, a sculptor playing with abundant possibilities of form, colour and texture, especially around the recent lava flow from a nearby mountain that dates to about 10,000 years ago.

The absence of a settlement in close proximity to the site further exemplifies its desert setting with wide open 360 degree horizons.

1.4.2 Flora and fauna

The presence of water, underground and through rainfall allows flora and fauna to flourish. Many trees and other plants naturally grow in the province. Water levels continue to fall, however, as the regional water demand exceeds the renewable water resource and new-renewable resources. The fossil water of the aquifers is being drawn down to make up the deficit, increasingly from deeper wells.

Wild animals known in Hail Province include the ibex, rabbits, desert rats, foxes, wolves, several types of lizards, poisonous and non-poisonous snakes and several species of birds including eagles, falcons and pigeons. Several early twentieth century accounts report the presence of

oryx and gazelle. Wildlife populations have been reduced as a result of hunting and expanding urban development.

The Nafud desert is relatively rich in perennial forage and ghada bushes. The deep aquifers of Jubbah oasis support agricultural activities, including palms, fruit trees as well as grain crops such as wheat and barley.

2 The Sites Today

2.1 Ownership and management

2.1.1 Ownership and responsibility

The sites of Jabal Umm Sinman (Jubbah) and Jabal al-Manjor and Jabal Raat (Shuwaymis) and the areas indicated as their buffer zones are the property of the Government of Saudi Arabia, and in accordance with Royal Decree No. M/26 dated 23/06/1392H (1972) and through the Resolution by the Council of Ministers No (78) dated 16/3/1429H (2008), are managed by the Saudi Commission for Tourism and Antiquities (SCTA).

Immediate responsibility for sites lies with the Provincial office for the SCTA in Hail, and the Director of Antiquities and the Regional Museum in Hail. At the SCTA the responsibility for World Heritage Sites falls into a specifically created Directorate General, overseen directly by Dr Ali Al-Ghabban, Vice President for Antiquities Sector.

The site of Jabal Umm Sinman (Jubbah) was fenced by a 7 km length of fence on its eastern side in 1408H (1987). More recently, fencing 6 km in length was erected at Jabal al-Manjor and Jabal Raat (Shuwaymis), with plans to extend it. The mouth of the valley has been demarcated with boundary markers that have been painted white.

2.1.2 Legal status

The sites of Jabal Umm Sinman (Jubbah) and Jabal al-Manjor and Jabal Raat (Shuwaymis) are government property and as site of archaeological and historical significance protected by Royal Decree No. M/26 dated 23/06/1392H (1972), Law on Antiquities. A revised and updated version is currently in the process of being passed by the Council of Ministers. This updated version broadens the scope of the original legislation, but will not effect the way in which these sites are protected.

All antiquities sites in the Kingdom are managed and protected by the Saudi Commission of Tourism and Antiquities, following the integration of Antiquities and Museums into the Supreme Commission for Tourism through the Resolution by the Council of Ministers No (78) dated 16/3/1429H (2008). Royal Decree No. M/26 clearly stipulates that,

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 An-

tiquity 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 mounds, buildings and sites close to populated areas in order to secure it 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 licenced 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.

2.1.3 Habitation within the buffer zones

Neither the protected area or the buffer zone of the Jubbah site is inhabited and as State property, there is no possibility for it to be inhabited. The oasis town of Jubbah is located stretches out to the east of the boundary fencing. A small municipal park and a football pitch are located within the buffer zone on the edge of the core area (Figure 2.1).

In Shuwaymis, an extended Bedouin family of approximately 25 members, has traditionally lived in the buffer zone of the property. Their semi-permanent camp, mostly of tents, is located about 1 km from Jabal Raat. The family derives its



Figure 2.1. Municipal park at the site entrance in Jubbah.



Figure 2.2. Bedouin encampment in Wadi Al-Mukhayet, Shuwaymis.

livelihood from camel herding, most of their animals graze in the upper reaches of Wadi Al-Mukhayet. This family's presence is instrumental to the protection of the rock art, which they regard as their own ancient patrimony. It would be impossible to approach the sites without their noticing (Figure 2.2).

2.2 Excavations and Archaeological investigation

2.2.1 Jubbah

There is an ongoing Late Pleistocene and Holocene archaeological research survey Palaeodeserts Project at Jubbah since 2011. The survey, being undertaken by an interdisciplinary team from Oxford University and King Fahd University in Riyadh, is directed by Professor Michael Petraglia of Oxford University. This survey has been instrumental in recording the rock art sites using GIS technologies and research approach.

The team have started to publish their findings and annual fieldwork is planned to continue for the coming years. It is anticipated that this project will continue to supply valuable complementary information about the sites, their environmental history and their use by the human groups living there in Prehistory.

2.2.2 Shuwaymis

This follows extensive previous survey work of the rock art and archaeological resources by the Department

of Antiquities and Museums since the 1970s, recently including comprehensive GIS recording of all sites. The work was extended to the scientific dating of the rock art, beginning in 2001 at Jubbah and Shuwaymis, which has since been extended to various other parts of the Kingdom.

This site complex has been subjected to studies since its re-discovery in 2001 by the Department of Museums and Antiquities, and more recently the SCTA, especially through the work of M. Khan and R.G. Bednarik. In 2013, the Palaeodeserts Project team working at Jubbah, also carried out a survey of the rock art sites at Shuwaymis. Otherwise, this more recently discovered site has not as yet been the subject of substantive organised research expeditions.

2.2.3 Other sites in Hail Region and gaps in knowledge

Apart from the 1976 and 1987 comprehensive surveys, there has been limited exploration and research of rock art sites across the Hail Region. Dr Majeed Khan's work on rock art in Saudi Arabia is a comprehensive record of investigations and surveys that have been undertaken since the first survey of 1976.

There are no current research excavations being undertaken at other rock art sites in the province, but a programme of 'direct dating' of the rock art was commenced immediately after the Shuwaymis rock art complex became known in 2001.

To date the rock art sites have not been systematically linked to archaeological deposits at an intra-site scale to complete palaeo-ethnographical, geo-archaeological and palaeo-environmental context for the sites. The Palaeodeserts Project has started to address this gap at the Jubbah, but there is still a significant gap in this knowledge.

2.2.4 Hail University Department of Archaeology

Hail University, based in Hail City is one of two Universities in the Kingdom to have a dedicated Archaeology department. Although the study of rock art is not being taught at the current time, the Department and University have expressed an interest in developing research and teaching in the field.

2.2.5 Information sources and archaeological record

All the data obtained from the comprehensive archaeological surveys and by the Rock Art exploration team in the Department of Antiquities and Museums are filed in the Antiquities Research Centre of the Saudi Commission for Tourism and Antiquities (SCTA) at its offices in Riyadh.

Various other publications and reports emerging from

the more recent Palaeodeserts Project are held in and can be consulted in the SCTA Research Centre.

An extensive reference bibliography of published sources on the sites is provided in Appendix 1 of this management plan and in the nomination document.

2.3 Conservation

2.3.1 Rock Art

The sites are in very good state of conservation. This is attributed to the ideal climatic conditions of the desert with significantly limited moisture and associated vegetation growth. The sites have been protected by fences and local guards for some time in an established pattern of stewardship that discourages vandalism or intentional damage. The remoteness of some sites has also acted as a deterrent.

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.

In Jubbah the proposed buffer zone includes some waterworks, parks and playing field, but is free of residential developments (Figure 2.3). An irrigation project immediately inside the buffer zone boundary is intended to protect the town from flash floods.

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,



Figure 2.3. Jubbah, Jabal Umm Sinman, site boundary to northeast.



Figure 2.4. The present day settlement of the Jubbah oasis is located in the indent of the Paleolithic lake.

physical weathering, biological weathering factors as well as anthropogenic effects (Bednarik 2007: 85–114).

2.3.2 Areas of archaeological significance and potential archaeological significance

Although the rock art sites have been extensively surveyed and are therefore protected, much less is known about areas of archaeological deposits that could assist the understanding and analysis of the rock art. The boundaries of such sites have not been established and areas of potential archaeological deposits have often not been identified.

Much of these areas lie under desert sands, and as such are protected. Where there are settlements, however, there are threats to archaeological material from farming practices, infrastructure projects and potentially from uncontrolled development. This is particularly the case in parts of Jubbah.

2.4 Social and economic context

2.4.1 Jubbah town

The oasis town of Jubbah has c. 12,000 inhabitants. The present day settlement is characterised by modest single storey buildings, many of them attached to gardens. Jubbah is easily accessible from Hail city, the provincial capital. Jubbah town is a thriving town, with a laid out road network, mosques, a modest centre with small shops, and recreational facilities including a football pitch and several small parks. The cultural offer of the town includes a private museum, run by the Al Naif family and a recently



Figure 2.5. Decaying mud brick building in Jubbah in close proximity to the privately owned Al Naif Museum.



Figure 2.6. Visitor centre at Jubbah.

completed cultural centre including up-to-date meeting and conference facilities.

All the oasis structures would originally have been built in mud brick in a typical Najdi style, though much of these have now been replaced by rendered concrete blocks. Between 100-150 mud brick buildings reportedly survive in the town.

2.4.2 Shuwaymis

Shuwaymis is a largely rural and remote area with Bedouin herders. Al Hayet is the closest town. A local Bedouin family living in Wadi Al Mukhayat, at the heart of the site, are paid and trained by the SCTA Hail Branch to act as guards at the site.

Shuwaymis village is a modest settlement located 40 km from the sites with few facilities. The road connecting the site

to the village is not metalled and devoid of any service facilities. A further 30 km from Shuwaymis is the town of Al Hayet, which is an established centre with commercial and retail facilities, and several small hotels/furnished apartments. At Al Hayet there is also the ruins of the ancient oasis of Fadak with its extensive stone city wall and now largely abandoned mud brick buildings. One of the mud brick houses has been restored and converted for use as a local museum.

2.5 Visitor facilities

2.5.1 Access to the sites

Jubbah is reached by asphalt road from Hail City where the regional airport is located. The trans-national highway connecting Riyadh with Jordan runs immediately to the north of the site.

Jabal al-Manjor and Jabal Raat are located in a remote area currently reached by un-metalled desert road for approximately 40 km from Shuwaymis village and the town of Al Hayet beyond that. A new asphalt road is currently being constructed. However, this is a largely remote area with little habitation and consequently few facilities, including service stations, outside of the centres such as Al Hayet. Nonetheless, the proximity of the sites to Medinah Province, and the site of Madain

Saleh should not be discounted with a view to future tourism planning.

2.5.2 Buildings and services

Jubbah

There are two buildings at the designated entrance to Jabal Um Sinman (Jubbah), a guards hut and newly completed visitor centre (Figure 2.6). The visitor centre, currently unoccupied, has not been fitted out. There are currently no toilet facilities at the site.

Opposite the entrance and outside of the site boundaries is a municipal park with landscaping, shade structures, and a children's play area (Figure 2.1).

Shuwaymis

There are currently no visitor facilities at the site. Tentative plans have been drawn up for a visitor centre, similar to the one at Jabal Um Sinman.

2.5.3 Interpretation

In the absence of the sites being open to visitors at the present time, there is little in the way of information and interpretation at any of the rock art sites in the province. There is, nonetheless, a growing body of information on the site that is available to the public, including:

National Museum in Riyadh

The National Museum in Riyadh includes displays and interpretation material on rock art sites in Saudi Arabia.

Hail Museum

A small provincial museum is located in the centre of Hail. Typical of provincial museums in the Kingdom, the museum display follows a chronological order from the geology of the Kingdom and region in particular, through historic stages of development up to the present Kingdom of Saudi Arabia. A further room holds ethnographic material.

The display provides information on the two sites as well as exhibiting a small number of artefacts and samples of rock art. The Museum is to move into a new building which is under construction within the next year.

Local museums

In Jubbah, the Al Naif Museum is a privately owned museum managed by a family trust. Although the museum does not focus on rock art, it contains considerable ethnographic material relating to rural life in an oasis, an ancient well and restored mud brick buildings that include the room where the travellers Lady Blunt and her husband stayed on their visit in the late nineteenth century.

The local museum in Al Hayet mainly focuses on the Fadak, including finds from the site dating to various periods and several inscriptions and stone carvings. As part of the



Figure 2.7. Display of rock art sites in Hail Museum (September 2013).



Figure 2.8. Interpretation panels at Jubbah.

network of national museums, this small museum may be of significance for its proximity Shuwaymis.

On site interpretation

At the present time there is very limited information available at the sites, due to the limited visitation to these sites. Several panels have been erected at the base of Jabal Umm Sinman in Jubbah with a stone plinth and panel, with interpretation to be added to them (Figure 2.8).

Books and publications

Small fold out map brochures on the sites and other cultural heritage sites in the province have been produced by the SCTA Office in Hail.

There is also a more comprehensive and high quality guide to Jubbah, in Arabic and English, written by Dr Majeed Khan and published by the Saudi Commission for Tourism and Antiquities.

The SCTA website has a selection of 200 images with captions that can be easily accessed with a link from the homepage 'Rock Art in the Hail Region'.

2.6 Tourism in Hail Province

2.6.1 The Provincial Tourism Plan

Following the National Sustainable Tourism Plan for the Kingdom of Saudi Arabia completed in 2002, a province level tourism plan was prepared for Hail in 2004.

The plan identifies tourism resources of the province as being:

- Resources related to the natural environment such as scenic landscape beauty of the mountains and deserts, flora and fauna with a variety of wildlife.
- Resources related to archaeological sites and historic places including prehistoric sites especially rock art, and, buildings in the traditional architectural style and materials.
- Resources related to other aspects of cultural heritage including Bedouin way of life, traditional markets, handicrafts and cuisine.
- Other types of resources including a strong sense of hospitality, agricultural techniques and products, museums, festivals and use of camels and horses.

However, the report also identifies Hail as not having 'any single outstanding attraction to serve as a focus of tourism development'.

The vision for tourism development is based on 'cultural and environmental heritage and sense of traditional hospitality, with a mission to preserve cultural integrity and ensure environmental protection.

The first five year plans recommended by the report, include a visitor centre at Jubbah and tourism development at Al Hayet, which is at a distance of 40 km proximity to Jabal al-Manjor and Jabal Raat, and the closest centre to the sites. The plan also recommends better application of land use controls and zoning regulations and the development of community based tourism including eco-tourism, Bedouin camp visits and traditional handicrafts development.

The Provincial Tourism Plan is being actively implemented by the SCTA Branch in Hail in collaboration with national and regional partners.

2.6.2 Visitor profiles and growth forecasts

The Provincial Tourism Plan for Hail identifies the highest visitor activity in the province as being visiting friends and relatives (VFR). The report also predicts this market to remain strong for the foreseeable future, 'given the demographic make-up of the Kingdom and the high number of Hailis living outside the province'.

Growth areas are seen as the youth market attracted

to the adventure, sports and cultural activities that will be available in the province. The expatriate market, the Arab and GCC markets will come for adventure, relaxation and culture. The Umrah Plus market will come to relax after their pilgrimage. Hail will be a 'must see' stop for the international market on cultural tours. With the development of the proposed conference complex, Hail will become a conference destination.

Visitor numbers to rock art sites has been limited as a result of the requirement to obtain a permit from the SCTA. Current estimates indicate approximately 4000 visitors a year to the Jabal Umm Sinman in Jubbah. Its remote location has meant that visitor numbers at the Shuwaymis site have been much smaller. All visitors at both sites, and other rock art sites in the region, are accompanied on their visit by the trained guards or guardians at the sites.

2.6.3 Implications for rock art sites

Saudi families visiting friends and relatives in the province are not the immediate target for visits to rock art sites, whilst groups that are most likely to be attracted to such sites are much less well represented in Hail's tourism profile.

Most tourist facilities, including hotels and furnished apartments, continue to be located in Hail City, which is where 40% of the population is located. Hail City is also the only Tourism Development Area (TDA) recommended for the province.

Jubbah and Al Hayet have been identified as potential Tourism Sites. Handicrafts development is recommended for Jubbah. There is already an existing expectation of tourism growth in Jubbah, exemplified in a number of municipality-led projects, including a new conference centre, a new *souq*, shopping complex including crafts shops, and various municipal parks. Further proposals for a hotel (*istraha*) rest house complex have been submitted.

The accommodation offer in Al Hayet, the closest centre to Shuwaymis, remains limited.

Rock art sites in general are more likely to be part of a composite attraction combining natural and other complementary cultural resources.

3 Key Stakeholders and Interest Groups

3.1 Stakeholders

Although the primary responsibility for the protection and conservation of the sites lies with the Saudi Commission for Tourism Antiquities, Antiquities and Museums Section and its various directorates, a number of stakeholders who either have authority in making planning decisions beyond the site boundaries have been identified as potential project partners in realising the objectives of the management plan.

3.1.1 Government Departments

The Saudi Commission for Tourism Antiquities (SCTA)

Antiquities Study and Research Centre
Museums Directorate
Archaeology Directorate

SCTA Branch in Hail,

Director of Antiquities and the Regional Museum in Hail (Mr Saad Al-Rawsam)
Director of Tourism (Mr Mubarak Salama)

Ministry of Municipalities and Rural Affairs (MOMRA)

As overseeing the Municipalities of Jubbah and Al Hayit

3.1.2 Local partners

Governor of Hail Province

Hail Province Development Commission

Governor of Jubbah

Municipality of Jubbah (including planning department)

Governor of Al Ghazalah

Municipality of Al Hayet

Owners of the Al Naif Museum, Jubbah

Local Bedouin families acting as site guards.

3.1.3 Supporting organisations

University partners and academics

Archaeology departments in King Fahd University of Riyadh and Hail University

International research teams working in the Hail Region

Other experts

3.2 *Process of consultation*

As part of the information gathering and preparation for the WHS nomination and this management plan that accompanies it, one on one briefing and information exchange meetings were held by the consultant and SCTA team with:

The Saudi Commission for Tourism Antiquities (SCTA)

Dr Ali Al-Ghabban, Vice President for Antiquities and Museums Sector

Mr Jamal Omar, Director General, Antiquities Study and Research Centre

Director General for Museums

SCTA Branch in Hail

Mr Saal Al-Rawsam, Director of Antiquities and the Regional Museum in Hail

Mr Mubarak Salama, Director of Tourism

Eng. Ziyad Eyedah Al Musaiwel

Jubbah

Mr Fawzan al Fawzan, Mayor of Jubbah

Eng. Khamiss Ak Saadi, Municipality of Jubbah

Governor of Jubbah

Shuwaymis

Mayor of Al Hayet

Governor of Al Ghazalah region

Archaeological excavation and research teams

Dr Majeed Khan

Dr Robert Bednarik

Prof Michael Petraglia, director of Palaeodeserts Project, University of Oxford

University of Hail

(Dr Daifallah al Tahli, Head of Department of Archaeology, University of Hail)

Local community representatives.

These meetings took place as part of a well established and dialogue developed between the SCTA and local stakeholders in the run up to the World Heritage Site nomination process. Furthermore, the SCTA branch in Hail has an established working relationship with most local stakeholders as part of a commitment to deliver the Provincial Tourism Plan since 2004.

All the stakeholders have expressed their support of the World Heritage Site nomination and are aware of the supporting role they will need to play in the protection, conservation and management of the sites through the context of the local surroundings.

4 **Significance**4.1 *Statement of Significance*

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.

Criteria under which WHS inscription is proposed

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

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.

4.2 Values associated with the sites

Alongside the significance and outstanding universal value of the site, there are a number of values associated with the sites that enhance and support their cultural significance, notably:

Research value: Apart from a small number of research expeditions, the sites have not been studied in significant detail to date and there is huge potential for ongoing research at the two sites as well as other sites in the region and wider region. As such the sites and their surrounding environments withhold high research value.

Education value: The sites have educational value in the contribution they can make to professional level training in a number of disciplines at graduate and post-graduate levels in archaeology and its related disciplines, as well as for school age children.

Artistic/aesthetic value: The sites bear evidence to a long artistic tradition spanning several millennia. The high quality engravings (petroglyphs) display distinctively different rock art traditions over a period of 10,000 years.

Cultural historical value: The sites embody evidence of Bedouin lifestyle over thousands of years with links to Bedouin communities and traditions today. They also reflect major economic and cultural changes that have been experienced in a region that has always been a bridge between Africa and the continents beyond, including (caravan) trade routes.

Intangible value: The petroglyphs as well as the Thamudic and Arabic inscriptions that have been added within the last three thousand years point to an intangible heritage that contributes to the spirit and feeling of the petroglyphs and their links to present day local lifestyles and traditions.

Landscape value: The landscapes in which the sites are located bear evidence to the cultures that created the rock art, their settlement patterns, and the impacts climate change has had on settlements and the landscape itself. The present day natural settings of the sites are an important component of how they are understood, interpreted and appreciated.

Economic value: Although tourism activity at the sites has been minimal to date, the sites can generate economic value at various levels from job creation, servicing visitor requirements and the development and sale of handicrafts. In this respect, the sites have low, but nonetheless notable economic value.

5 Management Assessment

The management assessment considers the sensitivities

of the sites, threats and known, perceived and probably future risks that will need to be addressed in the management policies. This section also considers the strengths of the site opportunities that can be built on when planning for their effective management.

5.1 Sensitivities and threats

There is consensus that the sites of Jabal Umm Sinman (Jubbah) and Jabal al-Manjor and Jabal Al Raat (Shuwaymis), and indeed other rock art sites in Hail Region are well protected through climatic conditions, extensive secure fencing and guards, and sufficient legal instruments. The relative distance of the sites from major centres of population and growth also reduce the threat of encroachment or nearby industrialisation. Mining is also not seen as a current or future threat. Natural geological events such as earthquakes or volcanic activity are also considered to be a negligible threat based on historic occurrences in the region.

There are nonetheless a number of sensitivities and threats that need to be addressed in short or medium term management policies:

5.1.1 Accessibility and safety

- The sites are spread out and some are at some distance from centres of population.
- Although the distance and isolation of some of the sites helps protect them, this can also mean they are difficult to manage.
- The location of the art on rock faces, some of it at quite a height or above unstable terrain poses limitations to safe access.

5.1.2 Protection and conservation

- Adverse weather, exposure to wind and rainwater erosion and temperature differentials, especially between night and day have a minor impact on the rock art and its conservation.
- Some damage has been recorded from animals and bird droppings (birds of prey and smaller species).
- There is limited vegetation growth linked to the low annual rainfall. The few scrubs and plants that do grow at the sites are not a serious threat to the rock art.
- There is no recent graffiti postdating the installation of the fences and garbage in and around the sites has



Figure 5.1. Much of the rock art is located on uneven terrain and at a height.



Figure 5.2. Bird droppings, like vegetation are minimal at the sites.

- been largely removed.
- The conservation of rock art requires specialist scientific and technical expertise, which at the present time does not exist in Saudi Arabia.

5.1.3 Development pressures

- There are minimal development impacts (and the threat of future developments) on areas surrounding the rock art sites that are of archaeological or potential archaeological significance in Jubbah.
- The successful inscription of the sites on the World Heritage List could have a significant impact on the number of visitors wishing to visit the sites, and the impacts of developments to safely accommodate visitors at the sites will need to be carefully considered.

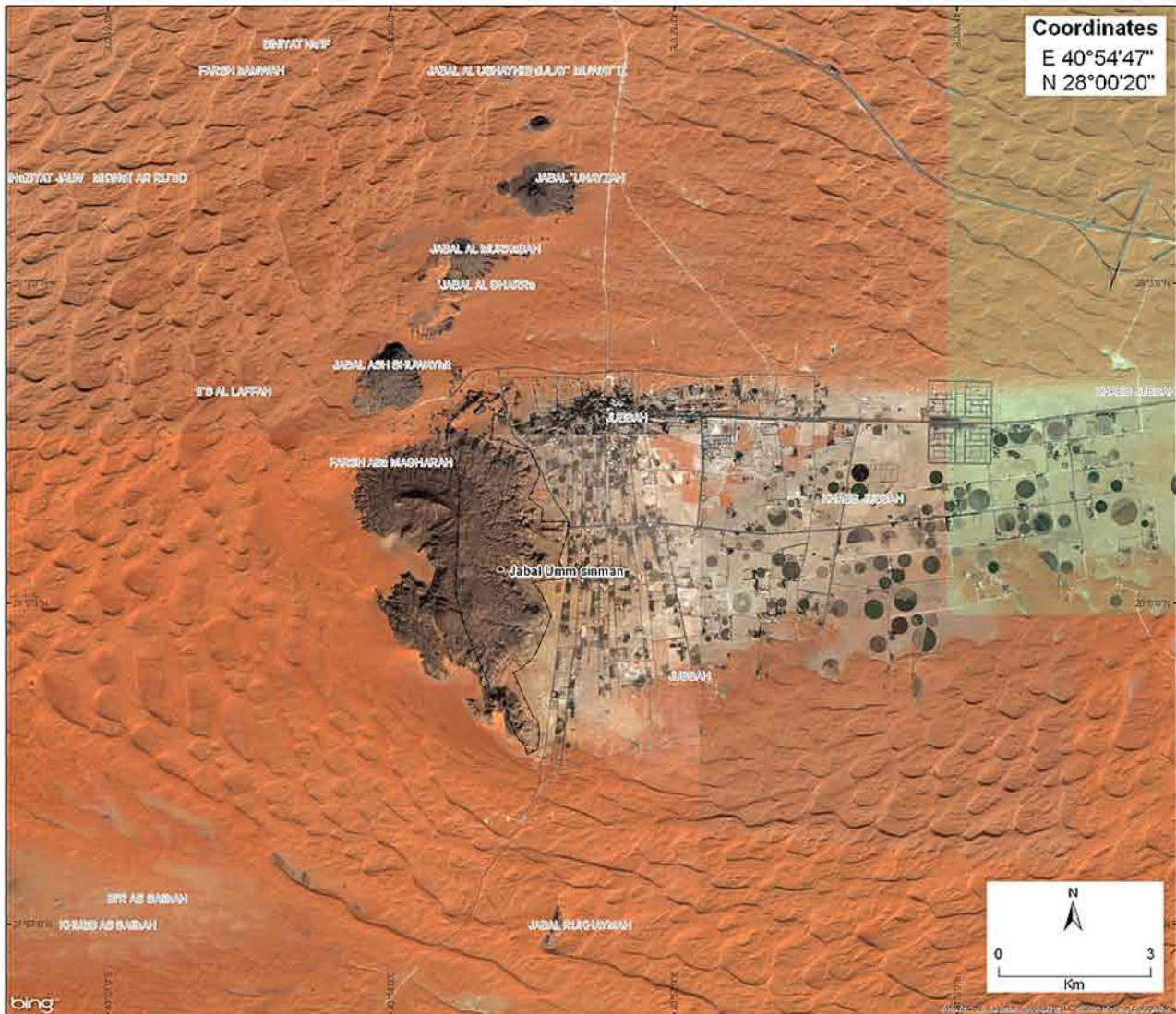


Figure 5.3. The growth of Jubbah town will need to be managed so as not to impact on areas of potential archaeological significance that lie beyond the buffer zone.

5.2 Opportunities

Some of the opportunities identified for the sites include:

- Level of preservation and favourable conditions for the conservation of rock art and the capacity to designate and manage extensive protective buffer zones.
- Central location and connectivity of Hail and human resource capacity, supported by an established University presence in Hail.
- Local commitment to the World Heritage Site nomination and local ownership and identification with the rock art.

6 Vision and Objectives

6.1 Aim

The aim of this management plan is to establish a framework that will ensure the sustainable development of the two sites within their broader regional context to pro-

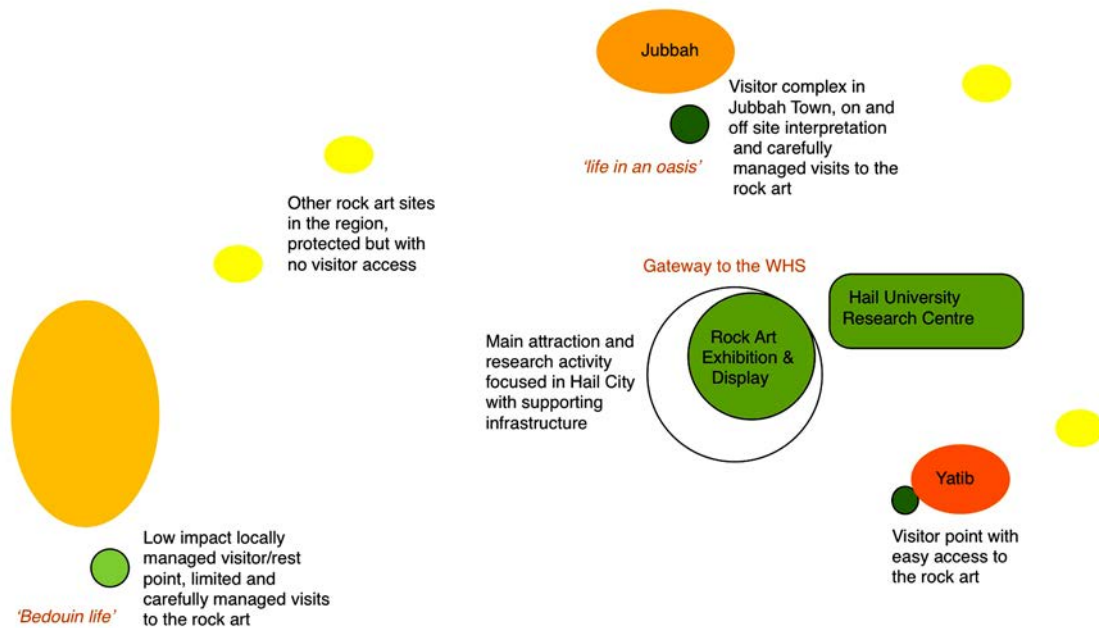
vide a memorable and educational experience for users and visitors, within the guidelines of internationally accepted conventions.

6.2 Rationale and approach

The general consensus is that rock art is best preserved under strictly managed conditions and with controlled and limited visitation. At the same time the importance of the site needs to be communicated to and shared with locals and visitors alike, while also generating local and regional socio-economic development opportunities.

In the interest of steering visitor focus and pressure away from the sites themselves, and capitalising on the resource availability in Hail City, the major population centre in the province, Hail will be developed as the centre and for rock art. Hail will play a **gateway** function to rock art in the region, through a state of the art museum and an inter-disciplinary Rock Art Research Centre. This will not only bring rock art to a wider audience in a format that appeals to the largely

CONCEPTUAL SCHEME FOR THE MANAGEMENT OF ROCK ART SITES IN HAIL PROVINCE



Aylin Orbasli, September 2013

Figure 6.1. Overview of approach to visitor management and interpretation of rock art sites in Hail Province.

family oriented visitor market, but also generate a flagship attraction to compliment other cultural heritage attractions in the city. The research centre on the other hand will capitalise on Hail's excellent transport connections and Hail University's existing archaeology department. The SCTA branch office in Hail will continue to play a major in the protection and management of the sites.

The town of Jubbah is keen to capitalise on a potential World Heritage Site on its doorstep and the opportunities tourism can develop at a time where agriculture is in decline. Placing a visitor complex in the centre of Jubbah town, will reduce impact on the site and its setting whilst focusing the economic benefits from visitors into the town. An effective visitor complex in Jubbah and good facilities could also reduce the actual visits to the site. This generates opportunities to use the interpretation to link the rock art to **life in the oasis** and associated agricultural practices and traditions.

It is also important that Jebel Umm Sinman is protected and presented within its natural setting and that facilities and interpretation in and around the site can be kept to a minimum and what is placed there is sympathetic to the natural environment. Visits to the site are envisaged in small guided groups, following a short easily accessible route and a slightly longer, 'tougher' route, all on designated walkways. A stabilised path at the base of the rock could enable less able visitors to see parts of the site from horse-drawn carts, or similar low-impact means.

Given the remoteness of the sites at Shuwaymis, and its more likely appeal to a small specialist audience, visits will

be low impact guided tours to selected parts of the site. The tours and any visitor services at the site will be developed in collaboration with the local Bedouin families acting as guards/guides.

In addition, local low-key visitor facilities will be developed at rock art sites in close proximity to Hail, as this could appeal to visitors seeing the exhibition at the museum but who do not wish to travel far. This type of development would also help absorb visitors away from the more remote and sensitive sites by providing a viable alternative. The approach is explained in Figure 6.1.

It is inevitable that there will be a notable increase in requests to visit the sites following their nomination and inscription on the list of World Heritage Sites. It is therefore essential that the sites are prepared in advance for the visits though interventions that are sensitive to the rock art and their landscape setting, that visits are carefully monitored and that a good monitoring system for the state of conservation of the rock art is in place beforehand.

6.3 Management objectives/ goals

The management objectives are to:

1. Protect the rock art sites and their outstanding universal value in accordance with international good 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 and the rock art of the Hail region.
4. Realise the potential of the sites to serve the tourism,

economic and social development of Hail Region and the communities associated with the sites.

6.4 Management team/ structure

Responsibility for the implementation of the management plan lies with the SCTA and its regional office in Hail Province. The SCTA, under its Directorate for World Heritage Sites, may establish a special entity with responsibility to manage the World Heritage Site, and coordinate the various agencies with administrative responsibilities for the localities in which these dispersed properties are placed.

At the SCTA the responsibility for World Heritage Sites falls into a specifically created Directorate General, overseen directly by Dr Ali Al-Ghabban, Vice President for Antiquities Sector.

7 Management Strategy and Policies

This section of the management plan lists the management policies that will be adopted to realise the management objectives identified in the previous section. Each policy is linked to a number of actions that will form the Action Plan for the next five year period of implementation of the management plan.

7.1 Landscape, context and setting policies

Maintaining the natural environment and setting of the rock formations is the key objectives in protecting the outstanding universal significance of the rock art sites of Hail Province.

7.1.1 Archaeological context and buffer zones

As noted in earlier sections of this management plan, the archaeological context of most rock art sites in Hail Province have not as yet been fully investigated. To date excavations have only been undertaken in Jubbah around Jabal Umm Sinman and several other rocky outcrops within the vicinity. These excavations clearly identify the need for wider archaeological exploration at all sites and the potential such excavations and surveys have in contextualising the rock art.

Ongoing archaeological studies are a long term prospect, but as surveys have revealed, it is essential that areas identified as being of potential archaeological significance are adequately protected at this time.

L1: The site zones recommended as core zones for the World Heritage nomination will be fully protected.

- The fencing will be extended to include site boundaries as recommended for the WHS nomination.
- Any further developments within the buffer zone boundary will be restricted and confirm to a masterplan for the site.

Linked to: Land-use planning policies (7.2.2)

L2: Areas of archaeological and potential archaeological significance will be established and included in the buffer zones.

- Existing survey information will be used to identify areas of archaeological significance and potential archaeological significance and determination of the buffer zone boundaries.
- Commission surveys to identify areas of archaeological significance and potential archaeological significance for areas where this information does not exist and might impact on the buffer zones.
- Communicate location of buffer zone to land owners and local planning authorities.

Linked to: Archaeology, research and conservation policies (7.3)

Land-use planning policies (7.2.2)

7.1.2 Landscape and setting

Various sources relate the distinct landscape of the sites, notably the rocky outcrops set in a desert landscape of sand dunes at Jubbah, and the valley setting with clear views spanning into the distance at Shuwaymis. These features also contribute to the understanding and appreciation of the sites.

Landscape considerations for the sites should consider the views to the sites, especially from key vantage points, as well as the views from the sites themselves.

L3: Key views of the rock art sites and significant views from the sites will be protected.

- Undertake viewshed studies to determine views of the sites from key vantage points, to include landscape features and land formations that contribute to the understanding and study of the sites.

Linked to: Land-use planning policies (7.2.1)

7.1.3 Cultural landscape

Beyond the two sites nominated for World Heritage inscription, the richness of rock art in the Great Nafud desert as well as in the southern and western parts of Hail Province make it into a significant cultural landscape. Especially as research in the field is developed and stronger connections are made between the rock art, settlements and the pilgrim and trade routes that passed through the region, this aspect is likely to be emphasised.

L4: The collective value of rock art sites and their landscape settings in Hail Province will be recognised as a cultural landscape.

- Continue province-wide studies to map rock art sites within their archaeological and landscape context.
- Continue raising awareness with local stakeholders on the significance and value of this cultural landscape.

7.2 Land-use planning policies

7.2.1 Developments impacting on the setting of the sites

The landscape and setting of the sites have been identified as a significant value and a means of contextualising the sites in an evolving environment. In the case of Jabal Umm Sinman, this rock formation is already locally recognised as symbol of the town. It is therefore important that key views to the sites, as well as from the sites themselves are protected from developments that would negatively impact on them.

P1: Building and infrastructure developments taking place within the identified view shadows will not unduly impact on the setting and landscape values of the sites.

- Ensure viewsheds linked to the sites are incorporated onto local development plans.
- Stipulate guidelines (height and volume) for developments undertaken within viewshed zones that fall outside of the buffer zones.
- Discourage any urban/municipal lighting projects that could negatively impact on the setting and appreciation of the sites.
- Uphold policy restricting night time lighting of the sites.

7.2.2 Developments within the buffer zones

The buffer zones are areas that contribute to the conservation and understanding of the site. They are likely to include areas of archaeological significance or potential archaeological significance, as well as form an important component of the landscape and setting of the sites. Additionally, it is anticipated that some visitor facilities will be located in the buffer zones.

Developments within the buffer zones will be carefully monitored and directed to ensure that the significance and values of the sites are not compromised. Any development on the immediate boundary of the nominated World Heritage Site, should be treated with additional sensitivity and conform to similar planning and design guidance as the buffer zone.

P2: Where the buffer zone extends into an existing settlement as at Jubbah, all development within this zone and in close proximity to its boundary will conform to strict design guidelines.

- Review the masterplan for Jubbah to ensure necessary development controls are in place for zones falling within the buffer zone, that are of potential archaeological significance and that impact on the setting of Jabal Umm Sinman and linked rock art sites.
- Work with the Municipality of Jubbah and its planning authority to establish design and height guidelines for any infrastructure and building construction work being undertaken within the buffer zone or on its immediate boundary.
- Communicate these guidelines to owners of land bordering the buffer zones.

dering the buffer zones.

- Continue arrangements that require all construction works within or on the edge of the buffer zone to obtain permission from the SCTA or a body appointed by the SCTA to oversee the management of the World Heritage Site.

P3: Where the buffer zone is open land, any proposed structures within this zone will conform to strict guidelines in terms of design, materials and impact.

- Establish design guidelines for such areas that stipulate low rise small imprint structures that are ecologically sound using locally available materials and follow traditional norms of building.
- Liaise with the relevant infrastructure agencies to avoid location of paved roads and other infrastructure passing through the buffer zone.

P4: Any development work within a buffer zone will be preceded by archaeological investigations.

- Coordinate with local planning and national infrastructure agencies to ensure prior notice is given of planned developments within the buffer zones and ensure all archaeological investigations are undertaken by suitably qualified teams.

7.2.3 Developments within the site boundaries

By their very nature, rock art sites are spread out over a large expanse of nature. Their preservation and interpretation within this natural setting is essential for their effective protection, understanding and appreciation.

As part of the management strategy adopted for the sites of Jabal Umm Sinman (Jubbah) and Jabal al-Manjor and Jabal Raat (Shuwaymis) and the objective of protecting the sites as a natural environment, even minimal and low impact developments will **not** be permitted within the site boundaries.

P5: All major structures, paved surfaces and services will be restricted to the periphery of the sites' buffer zone and conform to established design guidelines.

- Establish design guidelines for the site periphery that stipulate low rise small imprint structures that are ecologically sound, use locally available materials and are reversible.
- Ensure that mains services (water and electricity) are limited to service areas at the site entrance.

P6: Only structures of a temporary nature, which are fully reversible and are in the interest of protecting the sites' outstanding universal value will be permitted within the site boundaries.

- Commission the design of international standard raised walkways that will ensure the rock art and associated archaeological deposits are protected in the best possible way.
- Commission the design of temporary shade structures

that could be placed on the agreed visitor route walkways at the sites.

P7: Vehicular traffic will not be permitted within the site boundaries.

- Car parks will be placed outside the buffer zones.
- For areas where a higher level of visitation is expected, develop designs for a low impact consolidated surface that is suitable for pedestrian traffic, carts and emergency vehicles.

7.3 *Archaeology, research and conservation policies*

7.3.1 Documentation

Building on surveys undertaken by the Department of Antiquities in 1976 and 1986, more recent research and publications on the subject (see Appendix 1) and ongoing surveys are generating an important body of information relating to the sites and their geological, archaeological, environmental and social context. As a growing number of researchers start working on the sites the need for a coordinated and accessible GIS linked database of publications, reports and finds becomes even more important.

A1: A province-wide 'rock art' database has been established to share all scientific information pertaining to rock art sites in the province.

- In partnership with the teams currently working at the sites develop and host a GIS linked database of information and finds.
- Maintain hard and electronic copies of all reports and publications relating to the rock art sites in Hail Province and in Saudi Arabia in the SCTA Resource Centre.

7.3.2 Archaeological excavation

Archaeological excavation and exploration surrounding the rock art sites, and essential to contextualising and dating the rock art, is as yet in its infancy. With growing awareness of the significance of the sites nominated for the World Heritage List and other numerous sites in Hail Province, it is important that archaeological explorations, excavations and surveys should continue.

A2: Archaeological excavations at the sites in partnership with Saudi Universities and international institutions will be continued.

- Promote and support ongoing archaeological investigations at rock art sites and areas surrounding them.

A3: Secure and suitable storage facilities will be established for archaeological material and finds that result from excavations.

- Agree location that is safe as well as easily accessible for storage of archaeological materials.
- Design storage facilities in consultation with the archaeological teams and to internationally accepted standards and conditions for the storage of different types of material.

- Ensure stores are accessible for scientific research purposes and materials that are stored are linked to the database.

7.3.3 Research and analysis

Research to date clearly points to the extent of discovery and research still to be undertaken to better understand rock art both in Hail Province and in Saudi Arabia. The establishment of a state-of-the-art research centre will serve a number of purposes, including furthering multi-disciplinary research on the subject, providing a base and facilities for Saudi and international teams working at the sites, coordination of information and finds, and training Saudi archaeologists to work and research in this discipline.

A4: A state-of-the-art research centre for Rock Art Studies will be established in partnership with Hail University.

- Work with Hail University to establish a centre for Rock Art Studies linked to their archaeology department.
- Establish links with international partner institutions to support and facilitate the founding of the centre.
- Through the centre train and develop local scientific and technical expertise in the conservation of rock art.

Linked to: Education policies

7.3.4 Protection and conservation

The state of conservation of the rock art sites has been reported as being very good with local climatic conditions being 'ideal' for their long-term survival. Threats linked to human activities are addressed in land use, protection and visitor management policies.

Underground archaeological material is less well protected, largely because areas where significant material deposits and other valuable information may be found have not been fully identified and therefore protected.

A5: The rock art will continue to be protected in accordance with Royal Decree No. M/26 through existing measures, considered visitor access, management and regular monitoring.

- Work with local guards to regularly monitor the condition of the sites and maintain the fencing surrounding them.
- Link the condition of the rock art to the database and monitor through regular condition surveys.
- Establish the maximum number of visitors per group to the various sites that will not cause damage to or endanger the rock art.

A6: Measures to improve protection and safeguarding of areas of known and potential archaeological significance will be implemented.

- The buffer zones for the Jubbah and Shuwaymis sites will include areas of known archaeological deposits and areas identified as having archaeological potential.
- Ensure areas of archaeological evidence within the

buffer zones, including base sediment and rock faces are not impacted on by visitation.

- Through surveys establish similar zones or areas connected to rock art sites in the province.
- All newly designated areas will be safeguarded in accordance with Royal Decree No. M/26.

Linked to: Land-use planning policies
Visitor management policies

A7: A monitoring program as per the WHS nomination (6.a) will be established and implemented.

- Establish a comprehensive monitoring system of key indicators measuring the state of conservation of the sites, especially of the effects of increased visitation and natural deterioration.
- Select permanent monitoring stations at both sites in accordance with the WHS nomination document Section 6.a.
- Ensure all monitoring data is logged with the SCTA and stored safely.

7.4 Visitor management policies

Visitor management policies are predominantly linked to the visitor experience and ways in which it can be enhanced. They are also closely linked to presentation and interpretation policies (Section 7.5) as well as policies concerning the protection and safeguarding of the rock art.

7.4.1 Hail City

As the major population centre of the province and with increasingly developing connectivity Hail has the potential to become the gateway to the rock art sites and the major point for visitor interaction and interpretation. Hail is the major population centre and point of arrival and even awareness of the sites for most visitors. There is an opportunity to generate a memorable visitor experience (without even visiting the sites), and linked educational activities for families as well as for local schools and different age groups.

V1: Hail Museum will be developed with major exhibits to become the 'gateway' to the World Heritage Site and rock art in the province.

- Evaluate existing plans for the new museum in Hail to determine ways in which the rock art displays can be enhanced and enlarged.
- Engage museum designers to develop state-of the art and interactive displays that tell the story of rock art in Hail Province and Saudi Arabia in ways that will appeal to a predominantly family audience.

Linked to: Presentation and interpretation policies

7.4.2 Jubbah

In order to reduce the impact of visitors to the site, as much as possible of the visitor services and interpretation as possible are being places away from the sites and within

dedicated visitor centres or visitor complexes. This also generates opportunities to use the interpretation to link the rock art to life in the oasis and associated agricultural practices and traditions.

Visits to the actual sites will be carefully managed through low impact and guided tours. Given the uneven, and in places hazardous terrain, it is advisable that general visitation is restricted to the more easily accessible and low level clusters of rock art. It is paramount that visitation does not impact on the rock art or the as yet unexplored archaeological material and sediments at the sites.

V2: A visitor complex within the heart of Jubbah town will act as the main hub for visitors.

- Work with the Municipality of Jubbah to identify a suitable location for a visitor centre that is in close proximity to other cultural heritage attractions in Jubbah town.
- Commission designs for a low impact visitor complex that is built in accordance with the design guidelines as recommended in P2.
- Facilities in this off-site visitor complex should include welcome, ticketing point, interpretation and displays, rest and food and drink facilities.
- Place road signage that clearly direct visitors to the visitor complex as the point of entry to the site.

Linked to: Land-use planning policies

V3: Visits to Jabal Umm Sinman will be by appointment (timed tickets) and by guided tours in small groups only.

- Identify areas of rock art that are reasonably easy to access for the guided groups and are not a health and safety hazard to visitors.
- Develop a visitor route for the groups to follow that is in the best interest of the protection of the rock art and associated archaeological material with minimal impacts for access.
- Establish paths and/or raised walkways that will not impact on the floor deposits or slope stability, that will prevent visitors from making contact with rock art panels and conform fully with international best practice of developing rock art sites for visitation (as identified in P6).
- Develop the existing visitor centre at the entrance to the site as a gathering and introduction point for groups, with toilets, drinking water and first aid equipment.
- Monitor the impact of visitors to the site, health and safety considerations and enjoyment of the visit.

Where the use of horsecarts is proposed then this should be on specially designed pathways and on the edge of the site following an impact assessment. Additionally an area outside of the site boundary needs to be identified for stabling, and sufficient shade areas and water sources provided for the animals at the start of the route.

7.4.3 Shuwaymis

It is recommended that visits to the site in the immediate future remain strictly limited to small groups and specialist visitors. Given the remoteness of the site, even in the longer term it is more likely to appeal to a small specialist audience.

V4: A locally managed small rest point/visitor reception close to Jabal al-Manjor and Jabal Raat, at the end of the metalled road and immediately outside the buffer zone, will provide services to researchers working at the site and visitors.

- Commission designs for a small rest point/visitor reception that is built in accordance with the design guidelines recommended in P3, as a cluster of low rise small imprint structures that are ecologically sound using locally available materials and follow traditional norms of building.
- Facilities in the locally managed visitor reception will include a small display, toilets, rest and picnic facilities, as well as first aid equipment.

Linked to: Land-use planning policies

V5: Visits to Jabal al-Manjor and Jabal Raat will be by appointment/permit under the control of the SCTA and only and in small guided groups.

- Visits to the sites will be in small groups led by a local guide, starting from the visitor reception/rest point.
- Identify areas of rock art that are reasonably easy to access for the guided groups and are not a health and safety hazard to visitors.
- Develop a visitor route for the groups to follow that is in the best interest of the protection of the rock art and associated archaeological material with minimal impacts for access.
- Establish paths and/or raised walkways that will not impact on the floor deposits or slope stability, that will prevent visitors from making contact with rock art panels and conform fully with international best practice of developing rock art sites for visitation (as identified in P6).
- Demand for visits and impacts at the sites will be monitored.

Linked to: Education, training and capacity building policies

Presentation and interpretation policies

7.4.4 Other rock art sites in Hail Province

None of the rock art sites in the province are open to unrestricted visitation. With the development of dedicated rock art displays at Hail Museum it is likely that there may be an increased interest in visiting sites that are close proximity to Hail City. The site of Yatib for example is easily accessible from Hail. It is also small and compact enabling relatively simple interventions, whilst offering a good selection of rock art and inscriptions for visitors to view.

A site or several sites that may be opened up in such ways will be carefully selected and visitor impacts at the sites carefully monitored.

V6: The opening up of smaller and accessible rock art sites to visitors will be considered where sensitive and sustainable interventions are possible.

- Assess suitability of a site based on easy accessibility from transportation routes, easy accessibility of rock art for viewing, safety of terrain for visitors, vulnerability and fragility of rock art, possibility of viewing a cluster of rock art that will make a visit memorable and worthwhile.
- Based on the boundary of the site, and views to and from the site, establish a suitable location for a small visitor reception point.
- Commission designs for a small rest point/visitor reception that is built in accordance with the design guidelines recommended in P3, as a low rise small imprint or temporary structure that is ecologically sound using locally available materials and follows traditional norms of building.
- Facilities in the locally managed visitor reception will include a small display, toilets, rest and picnic facilities.
- Establish paths and/or raised walkways that will not impact on the floor deposits or slope stability, that will prevent visitors from making contact with rock art panels and conform fully with international best practice of developing rock art sites for visitation (as identified in P6).
- Establish a system of local guides who will lead the small group visits to the site starting from the visitor reception/rest point.
- Demand for visits and impacts at the sites will be monitored.

Linked to: Education, training and capacity building policies

Presentation and interpretation policies
Land-use planning policies

7.5 Presentation and interpretation policies

The interpretation of the rock art sites will follow the same rationale for visitor management, by focusing interpretation 'hard ware' in an easily accessible and serviceable location in Hail City, and then cascading down to the sites through a series of small visitor centres and visitor receptions, and supported by mobile technologies.

This is intended to reduce visitor pressure at the sites themselves as well as 'clutter' of interpretive materials at the sites, with interpretation delivered through visitor centres and reception points, mobile technologies and local guides. A range of interpretive approaches and materials will also assist in reaching and appealing to different audiences.

I1: A province-wide rock art interpretation plan will form the

framework for onsite interpretation and a coordinated approach to the key messages, as WHS nomination (5.i).

- Commission an interpretation plan for the proposed Rock Drawings of Hail Province World Heritage Site and other rock art sites across the province.
- Use the interpretation plan to inform the development of interpretive materials at the major centres, at the sites and in other media.
- Update the interpretation plan on a regular basis to include new information that comes to light.

7.5.1 Museums, visitor centres and visitor receptions

The type and size of buildings proposed for the various visitor facilities have been identified in Sections 7.2 Land use planning policies and 7.4 Visitor management policies. The following interpretation policies focus on the types of interpretive messages and materials that could be delivered across the sites.

I2: State-of-the-art and engaging displays that will appeal to a broad non-specialist audience will position Hail Museum as a 'gateway to the WHS'.

- Work with the museum designers to seek the most effective means through which the rock art story can be conveyed to audiences.
- Consider the use of good quality replicas for part of the display.
- Work in partnership with the proposed Rock Art Research Centre to develop displays on the archaeological process and ongoing research.
- Work with education specialists to build in provision for children and schools groups, including dedicated learning environments.

Linked to: Education, training and capacity building policies

Archaeology, research and conservation

policies

I3: The visitor centre located in Jubbah town will convey the links between the rock art and life in the oasis.

- Work with museum designers and local partners in Jubbah to develop displays that introduce the Jabal Umm Sinman rock art as well as the development of the oasis from prehistory to the present day.
- Develop interpretive activities that will appeal to families with children.
- Promote the protection and conservation of traditional buildings and street morphology surrounding the visitor centre as an additional attraction to visitors.

Linked to: Visitor management policies

Land use planning policies

I4: Visitor reception points will provide information on each site and give an introduction to the visit.

- Work with designers to develop simple, easy to maintain and robust display panels on the individual sites for

indoor use in the reception points.

- Develop podcasts or similar mobile technologies to provide more in-depth interpretation on the rock art and other aspects (e.g. flora and fauna) of the sites. These should be linked to the display panels and accessed by scanning a code on the panels with a mobile phone.
- Develop a short video to be shown at the start of a group visit that conveys things to be aware and considerate of when visiting the sites.

Linked to: Visitor management policies

7.5.2 On-site interpretation

Interpretation materials placed on site will be kept to a minimum, reducing the impact of 'clutter' on the sites and negating the difficulty of maintaining signs and panels in desert conditions and high temperatures. Instead, interpretation will be provided by an introduction at a visitor reception point, local guides who will guide small group visits, and material (text, oral or video) downloadable to mobile phones.

I5: Local site guardians will be the main point of information and guides at the sites.

- Train local guards to welcome and guide visitors around the sites.

Linked to: Education, training and capacity building policies

Visitor management policies

I6: Interpretation material and signage within the site boundaries will be kept to a minimum.

- Only essential and directional signage should be placed at the sites. This signage should be uniform in appearance, and sensitive to the environment and natural setting of the sites.
- Where rock art may be visible from beyond the site boundary a view point with interpretation panels might be considered on the boundary fence. Such interpretation should be low level, conform to the design guidelines for structures within the site boundary and in no way visually impact on the site and its setting.

Linked to: Visitor management policies

Land use planning policies

7.6 Education policies

7.6.1 Archaeology education and research

One of the key benefits the recognition of the rock art sites in Hail Province will bring is the development of research and professional training in the field of rock art, which will be a first in the Kingdom of Saudi Arabia, and the wider region. The nomination seeks to build on this opportunity by establishing a Centre for Rock Art Research hosted by Hail University (7.3.3). This will support Saudi scholars to become experts and lead research into this field.

E1: Through the proposed Centre for Rock Art Research

and other initiatives the educational potential of the sites will be actively promoted.

- Working in partnership with research and excavation missions working at the rock art sites enable Saudi students to participate in the work of the missions (on site, in research laboratories and in material conservation).
- Seek funding for Saudi scholars to undertake PhD level studies or research at international partner institutions and centres specialising in rock art.
- Establish means through which Saudi students can be trained in the most up-to-date scientific and technical methods required for rock art conservation.
- Introduce lectures or modules on rock art at the Departments of Archaeology in Riyadh and Hail, including input from international experts working in Saudi Arabia.

Linked to: Archaeology, research and conservation policies

7.6.2 Schools and linked education projects

The sites and the knowledge pertaining to them is also of educational value to school level children in subjects ranging from history, biology and social sciences. Working in collaboration with the proposed Centre for Rock Art Research the new rock art displays at Hail Museum will be the focus for school visits, benefitting from the catchment area of Hail and its young population.

E2: A strong educational component will be developed as part of the interpretation of the sites and rock art in Hail Province.

- As part of the development of Hail Museum appoint an education specialist to work with the museum designers to develop displays that are suitable and attractive to various age groups.
- Commission from an education specialist, educational materials, including teacher guides, linking the exhibition material to the Saudi Ministry of Education curriculum.
- Train education officers to work in the Museum to liaise with schools and guide school visits.

Linked to: Presentation and interpretation policies

7.6.3 Capacity building at sites

A third strand of the training involves improving capacity at the sites and partnering with local communities and training guards and guides to protect the sites, manage local visitor services and act as guides.

E3: A system of local rangers (guides/guards) developed in partnership with the local Bedouin communities living in close proximity to the sites, will form the core of site protection and visitor services offered at the site.

- Establish a centre in Hail to coordinate the appointment, training and activities of local site rangers.
- Provide adequate training to appointed rangers, includ-

ing the importance of the sites, managing and protecting the rock art and areas of archaeological significance, leading and guiding visitor groups, and basic first aid.

- Monitor efficacy of training and organise regular refresher courses that also allow rangers to share their experiences.
- Roll out the ranger programme to other rock art sites in the province.

7.7 Tourism policies

Tourism in Hail Province is steadily growing and is supported by a growing number of diverse visitor attractions and visitor services, notably hotels. The prime market remains families visiting friends and relatives.

7.7.1 Tourism promotion

The inscription of sites on the World Heritage List regularly generates a renewed local interest in them, with a surge of visitor numbers in the weeks that follow. The sites are not suitable for large number of visitors, and nor is a large increase in visitor numbers desirable. Therefore it is essential that the initial interest generated by a successful nomination is absorbed and catered for in Hail, in ways that will encourage future visits and engagement with rock art.

T1: Hail Museum will be the centre for the launch of the Rock Drawings of Hail Province World Heritage Site.

- Prepare a temporary exhibition either in Hail Museum (or elsewhere in the transition to the new museum) in preparation for the launch of the World Heritage Site nomination.
- Promote the WHS nomination through events and activities that will appeal to broad audience, as well as through conferences and scientific workshops.
- Promote the WHS nomination through similar events and activities in Jubbah.
- Use the WHS nomination as a key theme for promoting Hail in 2014 (1435H).

Linked to: Presentation and interpretation policies

T2: Longer term tourism strategies for the province will position the WHS as a significant asset for Hail Province.

- Actively promote Hail Museum as a gateway to the rock art sites and the cultural heritage of Hail Province.
- Develop links to other cultural heritage sites beyond the province in developing tourism itineraries and thematic clusters.

Linked to: Visitor management policies

7.7.2 Tourism infrastructure

The development of tourism activity beyond Hail City in particular will require strengthening of tourism infrastructure and facilities, including rest stops and overnight accommodation provision. Several of the rock sites across the province are in areas that are simply not suitable for

the development of tourism infrastructure. Almost all are in areas where such developments will need to be treated with care and are more likely to be of the low impact, eco-tourism, village tourism or Bedouin encampment variety recommended in the Hail Province Tourism Development Plan.

T3: Tourism development projects in proximity to the rock art sites will be sensitive to the significance of the sites and their natural setting.

- Work in close collaboration with local municipalities, planning departments and potential investors to ensure that proposals for tourism projects are designed to be sensitive to the sites and their natural surroundings, following similar design principles and guidelines as recommended for the buffer zones.
- Establish ways in which proposed new transportation links can be connected to cultural heritage sites where this is desirable.

Linked to: Landscape, setting and context policies

7.8 Implementation and review policies

These policies relate to the implementation of the management plan, the management structures that will be put in place to do so, and annual monitoring and review procedures.

- Agree final version of the action plan with all stakeholders identified as responsible organisations and partners
- Review the Management Plan on an annual basis to monitor progress and make any adjustments that may be necessary as a result of changing circumstances
- At the end of five years, review and revise the Management Plan, update as necessary and issue a new Action Plan to cover the next five year period.

8 Action Plan

8.1 Implementing management policies

The table on the following pages identifies responsibilities for undertaking each of the management strategies

identified in the previous section, the timeframe in which the action should be implemented, financing and relationship to the management objectives identified in this plan (Section 6).

8.1.1 Implementation and key players

Responsibility for the implementation of the management plan lies with the SCTA and its regional office in Hail Province. The SCTA, under its Directorate for World Heritage Sites, may establish a special entity with responsibility to manage the World Heritage Site.

The full implementation of the management plan will only be possible with the participation of various other key players and partners. These have been identified during the consultation process and are indicated in the Action Plan.

8.1.4 Urgency

Actions emerging from the policies will be classified as being:

Essential to the fulfilment of the management objectives and most likely requiring immediate action, with negative impacts resulting from a failure to fulfil the task.

Necessary to the fulfilment of the management objectives, but not of immediate urgency, and possibly dependent on the completion of other actions.

Desirable, not essential to the fulfilment of the management objectives, but will enhance and strengthen the delivery of the strategy.

8.1.3 Timeframe

The timeframe for implementation is noted as:

Short term	1-5 years
Medium term	up to 10 years
Long term	10+ years

The action plan will largely focus on actions to be undertaken within the first five years of the realisation of the management plan, although a number of actions will have longer term implications for the development of and future sustainable management of the sites.

The management plan will become operational in 2014, enabling a number of actions to be completed prior to the WHS inscription of the properties.

8.2 Action plan

Landscape, context and setting policies

Ref	Policy	Responsible organisation	Partners	Urgency	Time period
L1	The site zones recommended as core zones for the World Heritage nomination will be fully protected				
L1.1	The fencing will be extended to include site boundaries as recommended for the WHS nomination.	SCTA		Essential	Year 1
L1.2	Any further developments within the buffer zone boundary will be restricted and confirm to a masterplan for the site.	SCTA		Essential	Year 1
L2	Areas of archaeological and potential archaeological significance will be established and included in the buffer zone.				
L2.1	Existing survey information will be used to identify areas of archaeological significance and potential archaeological significance and determination of the buffer zone boundaries.	SCTA		Essential	Complete
L2.2	Commission surveys to identify areas of archaeological significance and potential archaeological significance for areas where this information does not exist and might impact on the buffer zones.	SCTA		Necessary	Year 1-2
L2.4	Communicate location of buffer zone to land owners and local planning authorities.	SCTA with local municipalities	Governorates of Jubbah and Al Ghazalah	Essential	Year 1
L3	Key views of the rock art sites and significant views from the sites will be protected.				
L3.1	Undertake viewshed studies to determine views of the sites from key vantage points, to include landscape features and land formations that contribute to the understanding and study of the sites.	SCTA		Necessary	Year 3
L4	The collective value of rock art sites and their landscape settings in Hail Province will be recognised as a cultural landscape.				
L4.1	Continue province-wide studies to map rock art sites within their archaeological and landscape context.	SCTA			Medium term
L4.2	Continue raising awareness with local stakeholders on the significance and value of this cultural landscape.	SCTA in Hail	Local municipalities and governorates		Short - Medium term

Land-use planning policies

Ref	Policy	Responsible organisation	Partners	Urgency	Time period
P1	Building and infrastructure developments taking place within the identified view shadows will not unduly impact on the setting and landscape values of the sites.				
P1.1	Ensure viewsheds linked to the sites are incorporated onto local development plans.	Municipality of Jubbah	SCTA in Hail	Necessary	Year 1-2
P1.2	Stipulate guidelines (height and volume) for developments undertaken within viewshed zones that fall outside of the buffer zones.	Municipality of Jubbah	SCTA in Hail	Essential	Year 1

Ref	Policy	Responsible organisation	Partners	Urgency	Time period
P1.3	Discourage any urban/municipal lighting projects that could negatively impact on the setting and appreciation of the sites.	Municipality of Jubbah	SCTA in Hail	Necessary	Years 1-5
P1.4	Uphold policy restricting night time lighting of the sites.	Municipality of Jubbah	SCTA in Hail	Desirable	Years 1-5
P2	Where the buffer zone extends into an existing settlement as at Jubbah, all development within this zone and in close proximity to its boundary will conform to strict design guidelines.				
P2.1	Review the masterplan for Jubbah to ensure necessary development controls are in place for zones falling within the buffer zone, that are of potential archaeological significance and that impact on the setting of Jabal Umm Sinman and linked rock art sites.	Municipality of Jubbah	SCTA in Hail	Essential	Year 1
P2.2	Work with the Municipality of Jubbah and its planning authority to establish design and height guidelines for any infrastructure and building construction work being undertaken within the buffer zone or on its immediate boundaries.	SCTA in Hail	Municipality of Jubbah	Necessary	Years 1-2
P2.3	Communicate these guidelines to owners of land bordering the buffer zones.	Municipality of Jubbah	SCTA in Hail	Necessary	Years 1-2
P2.4	Continue arrangements that require all construction works within the buffer zone or on the edge of it to obtain permission from the SCTA or a body appointed by the SCTA to oversee the management of the World Heritage Site.	SCTA	Municipality of Jubbah	Necessary	Year 2
P3	Where the buffer zone is open land, any proposed structures within this zone will conform to strict guidelines in terms of design, materials and impact.				
P3.1	Establish design guidelines for such areas that stipulate low rise small imprint structures that are ecologically sound using locally available materials and follow traditional norms of building.	SCTA		Necessary	Year 2
P3.2	Liaise with the relevant infrastructure agencies to avoid location of paved roads and other infrastructure passing through the buffer zone.	SCTA		Necessary	As the need arises
P4	Any development work within a buffer zone will be preceded by archaeological investigations.				
P4.1	Coordinate with local planning and national infrastructure agencies to ensure prior notice is given of planned developments within the buffer zones and ensure all archaeological investigations are undertaken by suitably qualified teams.	SCTA	Municipality of Jubbah	Essential	As the need arises
P5	All major structures, paved surfaces and services will be restricted to the periphery of the sites' buffer zone and conform to established design guidelines.				
P5.1	Establish design guidelines for the site periphery that stipulate low rise small imprint structures that are ecologically sound, use locally available materials and are reversible.	SCTA		Necessary	Year 2
P5.2	Ensure that mains services (water and electricity) are limited to service areas at the site entrance.	SCTA	SCTA in Hail	Essential	Year 2

Ref	Policy	Responsible organisation	Partners	Urgency	Time period
P6	Only structures of a temporary nature, which are fully reversible and are in the interest of protecting the sites' outstanding universal value will be permitted within the site boundaries.				
P6.1	Commission the design of international standard raised walkways that will ensure the rock art and associated archaeological deposits are protected in the best possible way.	SCTA		Essential	Prior to inscription
P6.2	Commission the design of temporary shade structures that could be placed on the agreed visitor route at the sites.	SCTA		Necessary	Year 1
P7	Vehicular traffic will not be permitted within the site boundaries.				
P7.1	Car parks will be placed outside the buffer zones.	SCTA		Necessary	Year 1
P7.2	For areas where a higher level of visitation is expected develop designs for a low impact consolidated surface that is suitable for pedestrian traffic, carts and emergency vehicles.	SCTA		Necessary	Year 2

Archaeology, research and conservation policies

Ref	Policy	Responsible organisation	Partners	Urgency	Time period
A1	A province-wide 'rock art' database has been established to share all scientific information pertaining to rock art sites in the province.				
A1.1	In partnership with the teams currently working at the sites develop and host a GIS linked database of information and finds.	SCTA	Saudi and international Universities	Essential	Year 3
A1.2	Maintain hard and electronic copies of all reports and publications relating to the rock art sites in Hail Province and in Saudi Arabia in the SCTA Resource Centre.	SCTA Resource Centre		Desirable	Year 2
A2	Archaeological excavations at the sites in partnership with Saudi Universities and international institutions will continue.				
A2.1	Promote and support ongoing archaeological investigations at rock art sites and areas surrounding them.	SCTA	Hail University	Desirable	Years 1-5 Medium term
A3	Secure and suitable storage facilities for archaeological material and finds that result from excavations will be established.				
A3.1	Agree location (outside of the buffer zones) that is safe as well as easily accessible for storage of archaeological materials.	SCTA	SCTA in Hail (Director of Antiquities and the Regional Museum)	Necessary	Year 1
A3.2	Design storage facilities in consultation with the archaeological teams and to internationally accepted standards and conditions for the storage of different types of material.	SCTA	SCTA in Hail Saudi and international University partners	Necessary	Year 2
A3.4	Ensure stores are accessible for scientific research purposes and materials that are stored are linked to the database.	SCTA	SCTA in Hail Saudi and International University partners	Necessary	Years 3-5 Medium term

Ref	Policy	Responsible organisation	Partners	Urgency	Time period
A4	A state-of-the-art research centre for Rock Art Studies will be established in partnership with Hail University.				
A4.1	Work with Hail University to establish a centre for Rock Art Studies linked to their archaeology department.	SCTA & Hail University		Essential	Years 3-4
A4.2	Establish links with international partner institutions to support and facilitate the founding of the centre.	Hail University	International University partners	Desirable	Years 4-5
A4.3	Through the centre train and develop local scientific and technical expertise in the conservation of rock art.	SCTA & Hail University	International University partners	Necessary	Medium term
A5	The rock art will continue to be protected in accordance with Royal Decree No. M/26 through existing measures, considered visitor access, management and regular monitoring.				
A5.1	Work with local guards to regularly monitor the condition of the sites and maintain the fencing surrounding them.	SCTA in Hail		Essential	Short term
A5.2	Link the condition of the rock art to the database and monitor through regular condition surveys.	SCTA	Hail University	Necessary	Medium term
A5.3	Establish the maximum number of visitors per group to the various sites that will not cause damage to or endanger the rock art.	SCTA	Site guards and guides	Essential	Year 1
A6	Measures to improve protection and safeguarding of areas of known and potential archaeological significance will be implemented				
A6.1	The buffer zones for the Jubbah and Shuwaymis sites will include areas of known archaeological deposits and areas identified as having archaeological potential.	SCTA	SCTA in Hail Saudi and International University partners	Necessary	Completed Medium term
A6.2	Ensure areas of archaeological evidence within the buffer zones, including base sediment and rock faces are not impacted on by visitation.	SCTA		Essential	Prior to inscription
A6.3	Through surveys establish similar zones or areas connected to rock art sites in the province.	SCTA in Hail Hail University	SCTA	Desirable	Medium/long term
A6.4	All newly designated areas will be safeguarded in accordance with Royal Decree No. M/26.	SCTA		Essential	Long term
A7	A monitoring program as per the WHS nomination (6.a) will be established and implemented.				
A7.1	Establish a comprehensive monitoring system of key indicators measuring the state of conservation of the sites, especially of the effects of increased visitation and natural deterioration.	SCTA	Local and international institutional partners	Essential	Prior to inscription
A7.2	Select permanent monitoring stations at both sites in accordance with the WHS nomination document Section 6.a.	SCTA & SCTA Hail branch		Essential	Year 1
A7.3	Ensure all monitoring data is logged with the SCTA and stored safely.	SCTA		Essential	Year 1

Visitor management policies

Ref	Policy	Responsible organisation	Partners	Urgency	Time period
V1	Hail Museum will be developed with major exhibits to become the 'gateway' to the World Heritage Site and rock art in the province.				
V1.1	Evaluate existing plans for the new museum in Hail to determine ways in which the rock art displays can be enhanced and enlarged.	SCTA (Museums Directorate) & SCTA in Hail (Director of Antiquities and the Regional Museum)	Museum designers	Essential	Year 1
V1.2	Engage museum designers to develop state-of the art and interactive displays that tell the story of rock art in Hail Province and Saudi Arabia in ways that will appeal to a predominantly family audience.	SCTA (Museums Directorate) & SCTA in Hail (Director of Antiquities and the Regional Museum)	Museum designers and interpretation consultants	Necessary	Years 2-3
V2	A visitor complex within the heart of Jubbah town will act as the main hub for visitors.				
V2.1	Work with the Municipality of Jubbah to identify a suitable location for a visitor complex that is in close proximity to other cultural heritage attractions in Jubbah.	SCTA (Museums Directorate), SCTA in Hail (Director of Antiquities and the Regional Museum) and Municipality of Jubbah	Local owners and local private museum	Desireable	Year 1
V2.2	Commission designs for a low impact visitor complex that is built in accordance with the design guidelines as recommended in P2.	SCTA (Museums Directorate) & SCTA in Hail (Director of Antiquities and the Regional Museum)		Desireable	Year 1
V2.3	Facilities in this off-site visitor complex should include welcome, ticketing point, interpretation and displays, rest and food and drink facilities.	SCTA (Museums Directorate) & SCTA in Hail (Director of Antiquities and the Regional Museum)		Desireable	Year 2
V2.4	Place road signage that clearly direct visitors to the visitor complex as the point of entry to the site.	Municipality of Jubbah		Desireable	Within 2 years
V3	Visits to Jabal Umm Sinman will be by appointment (timed tickets) and by guided tours in small groups only.				
V3.1	Identify areas of rock art that are reasonably easy to access and are not a health and safety hazard to guided group visits.	SCTA & SCTA in Hail (Director of Antiquities and the Regional Museum)		Essential	Prior to inscription

Ref	Policy	Responsible organisation	Partners	Urgency	Time period
V3.2	Develop a visitor route for the groups to follow that is in the best interest of the protection of the rock art and associated archaeological material with minimal impacts for access.	SCTA & SCTA in Hail (Director of Antiquities and the Regional Museum)		Essential	Prior to inscription
V3.3	Establish paths and/or raised walkways that will not impact on the floor deposits or slope stability, that will prevent visitors from making contact with rock art panels and conform fully with international best practice of developing rock art sites for visitation (as P6).	SCTA & SCTA in Hail (Director of Antiquities and the Regional Museum)	Rock art experts	Essential	Prior to inscription
V3.4	Develop the existing visitor centre at the entrance to the site as a gathering and introduction point for groups, with toilets, drinking water and first aid equipment.	SCTA in Hail (Director of Antiquities and the Regional Museum)		Essential	Year 1
V3.5	Monitor the impact of visitors to the site, health and safety considerations and enjoyment of the visit.	SCTA in Hail	SCTA	Essential	Years 1-5
V4	A locally managed small rest point/visitor reception close to Jabal al-Manjor and Jabal Raat, at the end of the metalled road and immediately outside the buffer zone, will provide services to researchers working at the site and visitors.				
V4.1	Commission designs for a small rest point/visitor reception that is built in accordance with the design guidelines as recommended in P3, as a cluster of low rise small imprint structures that are ecologically sound using locally available materials and follow traditional norms of building.	SCTA & SCTA in Hail (Director of Antiquities and the Regional Museum)	Museum designers	Necessary	Year 1/2
V4.2	Facilities in the locally managed visitor reception will include a small display, toilets, rest and picnic facilities, as well as first aid equipment.	SCTA & SCTA in Hail (Director of Antiquities and the Regional Museum)	Museum designers	Necessary	Years 2-3
V5	Visits to Jabal al-Manjor and Jabal Raat will be by appointment/ permit under the control of the SCTA and only in small guided groups.				
V5.1	Visits to the sites will be in small groups led by a local guide, starting from the visitor reception/rest point.	SCTA & SCTA in Hail	Local guides and guardians	Essential	Years 1-5
V5.2	Identify areas of rock art that are reasonably easy to access and are not a health and safety hazard to guided group visits.	SCTA & SCTA in Hail (Director of Antiquities and the Regional Museum)		Essential	Prior to inscription
V5.3	Develop a visitor route for the groups to follow that is in the best interest of the protection of the rock art and associated archaeological material with minimal impacts for access.	SCTA & SCTA in Hail (Director of Antiquities and the Regional Museum)		Essential	Prior to inscription
V5.4	Establish paths and/or raised walkways that will not impact on the floor deposits or slope stability, that will prevent visitors from making contact with rock art panels and conform fully with international best practice of developing rock art sites for visitation (as P6).	SCTA & SCTA in Hail (Director of Antiquities and the Regional Museum)	Rock art experts	Essential	Prior to inscription

Ref	Policy	Responsible organisation	Partners	Urgency	Time period
V5.5	Demand for visits and impacts at the sites will be monitored.	SCTA	Local guides and guardians	Necessary	Year 1 onwards
V6	The opening up of smaller and accessible rock art sites to visitors will be considered where sensitive and sustainable interventions are possible.				
V6.1	Assess suitability of a site based on easy accessibility from transportation routes, easy accessibility of rock art for viewing, safety of terrain for visitors, vulnerability and fragility of rock art, possibility of viewing a cluster of rock art that will make a visit memorable and worthwhile.	SCTA & SCTA in Hail (Director of Antiquities and the Regional Museum)		Desirable	Year 3
V6.2	Based on the boundary of the site, and views to and from the site, establish a suitable location for a small visitor reception point.	SCTA & SCTA in Hail (Director of Antiquities and the Regional Museum)		Desirable	Year 4
V6.3	Commission designs for a small rest point/visitor reception that is built in accordance with the design guidelines recommended for the buffer zone (P3), as a low rise small imprint or temporary structure that is ecologically sound using locally available materials and follows traditional norms of building.	SCTA & SCTA in Hail (Director of Antiquities and the Regional Museum)	Museum designers	Desirable	Year 4
V6.4	Facilities in the locally managed visitor reception will include a small display, toilets, rest and picnic facilities.	SCTA & SCTA in Hail (Director of Antiquities and the Regional Museum)	Museum designers	Desirable	Year 5
V6.5	Establish paths and/or raised walkways that will not impact on the floor deposits or slope stability, that will prevent visitors from making contact with rock art panels and conform fully with international best practice of developing rock art sites for visitation (as identified in P6).	SCTA & SCTA in Hail (Director of Antiquities and the Regional Museum)		Essential	Prior to opening up site to visitation
V6.6	Establish a system of local guides who will lead the small group visits to the site starting from the visitor reception/rest point.	SCTA in Hail		Necessary	Medium term
V6.6	Demand for visits and impacts at the sites will be monitored.	SCTA	Local guides and guardians	Necessary	Year 3 onwards

Presentation and interpretation policies

Ref	Policy	Responsible organisation	Partners	Urgency	Time period
I1	A province-wide rock art interpretation plan will form the framework for onsite interpretation and a coordinated approach to the key messages, as WHS nomination (5.i).				
I1.1	Commission an interpretation plan for the proposed Rock Drawings of Hail Province World Heritage Site and other rock art sites across the province.	SCTA		Essential	Prior to inscription
I1.2	Use the interpretation plan to inform the development of interpretive materials at the major centres, at the sites and in other media.	SCTA	Interpretation consultants & museum designers	Necessary	Year 1 onwards

Ref	Policy	Responsible organisation	Partners	Urgency	Time period
I1.3	Update the interpretation plan on a regular basis to include new information that comes to light.	SCTA		Desirable	Medium term
I2	State-of-the-art and engaging displays that will appeal to a broad non-specialist audience will position Hail Museum as a 'gateway to the WHS'.				
I2.1	Work with the museum designers to seek the most effective means through which the rock art story can be conveyed to audiences.	SCTA (Museums Directorate) & SCTA in Hail (Director of Antiquities and the Regional Museum)	Museum designers & interpretation consultants	Essential	Year 2
I2.2	Consider the use of good quality replicas for part of the display.	SCTA (Museums Directorate) & SCTA in Hail (Director of Antiquities and the Regional Museum)	Museum designers	Desirable	Years 3-4
I2.3	Work in partnership with the proposed Rock Art Research Centre to develop displays on the archaeological process and ongoing research.	SCTA (Museums Directorate), SCTA in Hail (Director of Antiquities and the Regional Museum) & Hail University	Museum designers	Desirable	Years 4-5
I2.4	Work with education specialists to build in provision for children and schools groups, including dedicated learning environments.	SCTA in Hail (Director of Antiquities and the Regional Museum) & Hail Education Department	Interpretation consultants and education specialists	Desirable	Years 4-5
I3	The visitor complex located in Jubbah town will convey the links between the rock art and life in the oasis.				
I3.1	Work with museum designers and local partners in Jubbah to develop displays that introduce the Jabal Umm Sinman rock art as well as the development of the oasis from prehistory to the present day.	SCTA (Museums Directorate) & SCTA in Hail (Director of Antiquities and the Regional Museum)	Municipality of Jubbah and local private museum and collection holders	Necessary	Year 1
I3.2	Develop interpretive activities that will appeal to families with children.	SCTA (Museums Directorate) & SCTA in Hail (Director of Antiquities and the Regional Museum)	Interpretation consultants	Necessary	Years 2-3
I3.3	Promote the protection and conservation of traditional buildings and street morphology surrounding the visitor centre as an additional attraction to visitors.	Municipality of Jubbah	SCTA	Desirable	Year 3 onwards
I4	Visitor reception points will provide information on each site and give an introduction to the visit.				
I4.1	Work with designers to develop simple, easy to maintain and robust display panels on the individual sites for indoor use in the reception points.	SCTA (Museums Directorate) & SCTA in Hail (Director of Antiquities and the Regional Museum)	Interpretation consultants	Necessary	Year 2

Ref	Policy	Responsible organisation	Partners	Urgency	Time period
I4.2	Develop podcasts or similar mobile technologies to provide more in-depth interpretation on the rock art and other aspects (e.g. flora and fauna) of the sites. These should be linked to the display panels and accessed by scanning a code on the panels with a mobile phone.	SCTA (Museums Directorate) & SCTA in Hail (Director of Antiquities and the Regional Museum)	Interpretation consultants	Desirable	Year 3
I4.3	Develop a short video to be shown at the start of a group visit that conveys things to be aware and considerate of when visiting the sites.	SCTA (Museums Directorate) & SCTA in Hail (Director of Antiquities and the Regional Museum)	Interpretation consultants	Desirable	Year 4
I5	Local site guardians will be the main point of information and guides at the sites.				
I5.1	Train local guards to welcome and guide visitors around the sites.	SCTA in Hail		Essential	Year 1
I6	Interpretation material and signage within the site boundaries will be kept to a minimum.				
I6.1	Only essential and directional signage should be placed at the sites. This signage should be uniform in appearance, and sensitive to the environment and natural setting of the sites.	SCTA & SCTA in Hail (Director of Antiquities and the Regional Museum)	Interpretation consultants	Necessary	Year 2
I6.2	Where rock art may be visible from beyond the site boundary a view point with interpretation panels might be considered on the boundary fence. Such interpretation should be low level, conform to the design guidelines for structures within the site boundary and in no way visually impact on the site and its setting.	SCTA in Hail (Director of Antiquities and the Regional Museum) & Municipality of Jubbah	Interpretation consultants	Desirable	Year 3-4

Education policies

Ref	Policy	Responsible organisation	Partners	Urgency	Time period
E1	Through the proposed Centre for Rock Art Research and other initiatives the educational potential of the sites will be actively promoted.				
E1.1	Working in partnership with research and excavation missions working at the rock art sites enable Saudi students to participate in the work of the missions (on site, in research laboratories and in material conservation).	SCTA	Hail University, Saudi Universities and international research expeditions	Necessary	Years 1-5
E1.2	Seek funding for Saudi scholars to undertake PhD level studies or research at international partner institutions and centres specialising in rock art.	SCTA, Saudi Ministry of Higher Education	Saudi Universities	Necessary	Year 2 onwards
E1.3	Establish means through which Saudi students can be trained in the most up-to-date scientific and technical methods required for rock art conservation.	SCTA	International research centres	Essential	Year 3 onwards
E1.4	Introduce lectures or modules on rock art at the Departments of Archaeology in Riyadh and Hail, including input from international experts working in Saudi Arabia.	Hail University, Saudi Universities with Archaeology departments and international research expeditions		Desirable	Year 2 onwards

Ref	Policy	Responsible organisation	Partners	Urgency	Time period
E2	A strong educational component will be developed as part of the interpretation of the sites and rock art in Hail Province.				
E2.1	As part of the development of Hail Museum appoint an education specialist to work with the museum designers to develop displays that are suitable and attractive to various age groups.	SCTA in Hail (Director of Antiquities and the Regional Museum)		Necessary	Year 2
E2.2	Commission from an education specialist, educational materials, including teacher guides, linking the exhibition material to the Saudi Ministry of Education curriculum.	SCTA in Hail (Director of Antiquities and the Regional Museum)	SCTA in Hail & Hail Education Department	Desirable	Years 3-4
E2.3	Train education officers to work in the Museum to liaise with schools and guide school visits.	SCTA in Hail (Director of Antiquities and the Regional Museum)	SCTA in Hail & Hail Education Department	Desirable	Year 3
E3	A system of local rangers (guides/guards) developed in partnership with the local Bedouin communities living in close proximity to the sites, will form the core of site protection and visitor services offered at the site.				
E3.1	Establish a centre in Hail to coordinate the appointment, training and activities of local site rangers.	SCTA in Hail		Necessary	Year 2
E3.2	Provide adequate training to appointed rangers, including the importance of the sites, managing and protecting the rock art and areas of archaeological significance, leading and guiding visitor groups, and basic first aid.	SCTA in Hail		Necessary	Year 2
E3.3	Monitor efficacy of training and organise regular refresher courses that also allow rangers to share their experiences.	SCTA in Hail		Desirable	Year 3 onwards
E3.4	Roll out the ranger programme to other rock art sites in the province.	SCTA in Hail		Desirable	Year 3-4

Tourism policies

Ref	Policy	Responsible organisation	Partners	Urgency	Time period
T1	Hail Museum will be the centre for the launch of the Rock Drawings of Hail Province World Heritage Site.				
T1.1	Prepare a temporary exhibition either in Hail Museum (or elsewhere in the transition to the new museum) in preparation for the launch of the World Heritage Site nomination.	SCTA in Hail (Director of Antiquities and the Regional Museum)	Exhibition designers	Essential	Year 1
T1.2	Promote the WHS nomination through events and activities that will appeal to broad audience, as well as through conferences and scientific workshops.	SCTA WHS Directorate & SCTA in Hail	Saudi and international Universities, and IFRAO	Necessary	Year 1
T1.3	Promote the WHS nomination through similar events and activities in Jubbah.	SCTA in Hail & Municipality of Jubbah		Necessary	Year 1

Ref	Policy	Responsible organisation	Partners	Urgency	Time period
T1.4	Use the WHS nomination as a key theme for promoting Hail in 2014 (1435H).	SCTA in Hail (Director of Tourism)	Local tourism agencies	Necessary	Year 1
T2	Longer term tourism strategies for the province will position the WHS as a significant asset for Hail Province.				
T2.1	Actively promote Hail Museum as a gateway to the rock art sites and the cultural heritage of Hail Province.	SCTA in Hail (Director of Antiquities and the Regional Museum)		Necessary	Year 3 onwards
T2.2	Develop links to other cultural heritage sites beyond the province in developing tourism itineraries and thematic clusters.	SCTA & SCTA in Hail	SCTA in Medinah Province	Desirable	Medium term
T3	Tourism development projects in proximity to the rock art sites will be sensitive to the significance of the sites and their natural setting.				
T3.1	Work in close collaboration with local municipalities, planning departments and potential investors to ensure that proposals for tourism projects are designed to be sensitive to the sites and their natural surroundings, following similar design principles and guidelines as recommended for the buffer zones.	SCTA in Hail	Municipalities of Jubbah and Al Ghazalah Tourism investors and developers	Essential	Years 1-5
T3.2	Establish ways in which proposed new transportation links can be connected to cultural heritage sites where this is desirable.	SCTA	Highways Department?	Necessary	Medium term

Implementation policies

Ref	Policy	Responsible organisation	Partners	Urgency	Time period
Imp 1	Agree final version of the action plan with all stakeholders identified as responsible organisations and partners	SCTA WHS Directorate	All	Essential	Prior to inscription
Imp 2	Review the Management Plan on an annual basis to monitor progress and make any adjustments that may be necessary as a result of changing circumstances	SCTA WHS Directorate		Essential	Annually
Imp	At the end of five years, review and revise the Management Plan, update as necessary and issue a new Action Plan to cover the next five year period.	SCTA WHS Directorate		Necessary	Year 5

Sources consulted for the Management Plan

Hail Province Tourism Development Plan (2004)

Hail City Tourism Development Plan (2005)

Operational Guidelines of the World Heritage Convention, UNESCO (2013)

Report of the ICOMOS Advisory Mission, Mr Roberto Ontanon-

Peredo (2013)

Rock Drawings in the Hail Region, The Kingdom of Saudi Arabia – draft nomination document (Dr Majeed Khan)

Royal Decree No. M/26 dated 23/06/1392H (1972), with updates.

All academic sources relating to the history and archaeology of the sites are listed in the Reference Bibliography in Appendix 1.

Appendix 1: Reference Bibliography

- AL-SHAHRI, A. A. 1991. Recent epigraphic discoveries in Dhofar. *Proceedings of the Seminar for Arabian Studies* 21: 173–191.
- ALTHEEB, S. 1999. *Thamudic inscriptions from the Kingdom of Saudi Arabia*. King Fahad National Library (in Arabic).
- ANATI, E. 1963. *Palestine before the Hebrews*. Alfred A. Knopf, New York.
- ANATIA. 1968. *Rock art in central Arabia, Vol. 1. The 'oval-headed people of Arabia'*. Bibliothèque du Muséon, Vol. 30, Institut Orientaliste/Instituut voor Oriëntalistiek, Louvain/Leuven.
- ANATI, A. 1972. *Rock art in central Arabia, Vol. 3. Corpus of the rock engravings, Parts I and II*. Institut Orientaliste, Louvain.
- ANATI, A. 1974. *Rock art in central Arabia, Vol. 4. Corpus of the rock engravings, Parts III and IV*. Institut Orientaliste, Louvain.
- ANATI, E. 1996. Har Karkom. *Bollettino del Centro Camuno di Studi Preistorici* 29: 13–48.
- ARZ, W. H., F. LAMY, J. PÄTZOLD, P. J. MÜLLER and M. A. PRINS 2003. Mediterranean moisture source for an early-Holocene humid period in the northern Red Sea. *Science* 300: 118–121.
- BEDNARIK, R. G. 1998. The technology of petroglyphs. *Rock Art Research* 15(1): 23–35.
- BEDNARIK, R. G. 2007. *Rock art science: the scientific study of palaeoart*. Aryan International Books, New Delhi.
- BEDNARIK, R. G. 2009. Experimental colorimetric analysis of petroglyphs. *Rock Art Research* 26(1): 55–64.
- BEDNARIK, R. G. and M. KHAN 2002. The Saudi Arabian rock art mission of November 2001. *Atlatl* 17: 75–99.
- BEDNARIK, R. G. and M. KHAN 2005. Scientific studies of Saudi Arabian rock art. *Rock Art Research* 22(1): 49–81.
- BEDNARIK, R. G. and M. KHAN 2009. The rock art of southern Arabia reconsidered. *Adumatu Journal* 20: 7–20.
- BETTS, A. V. G. 1998. *The Harra and the Hamad. Excavations and surveys in eastern Jordan*, Vol. 1. Sheffield Archaeological Monographs 9, Sheffield.
- ČERVÍČEK, P. 1986. *Rock pictures of Upper Egypt and Nubia*. Supplemento 46 fasc.1., Istituto Universitario Orientale, Napoli.
- CLARKE, C. F. 1975. The rock art of Oman. *Journal of Oman Studies* 1: 3–14.
- CRASSARD, R., M. PETRAGLIA, A. PARKER and A. ALSHAREKH in press. Southernmost distribution of pre-pottery Neolithic lithic technology: a Neolithic incursion into the Nefud Desert of northern Arabia. *Archaeological and Anthropological Sciences*.
- DOUGHTY, C. M. 1888. *Travels in Arabia Deserta*. Random House, New York.
- ENGELS, M., H. BRÜCKNER, A. PINT, K. WELLBROCK, A. GINAU, P. VOSS, M. GROTTKER, N. KLASSEN and P. FRENZEL 2012. The early Holocene humid period in NW Saudi Arabia — sediments, microfossils and palaeohydrological modelling. *Quaternary International* 266: 131–141.
- FACEY, W. 1987. The boat carvings at Jabal al-Jussaiyah, northeast Qatar. *Seminar for Arabian Studies* 17: 199–219.
- GARRARD, A. and C. P. D. HARVEY 1977. Environment and settlement during the Upper Pleistocene and Holocene at Jubbah in the Great Nafud, north Arabia. *Atlatl* 5: 137–156.
- GARRARD, A., C. P. D. HARVEY and V. R. SWITSUR 1981. Environment and settlement during the Upper Pleistocene and Holocene at Jubba in the Great Nefud, northern Arabia. *Atlatl* 5: 137–148.
- GHASRIAN, S. M. 2007. Sangestoon: a new rock art site in central Iran. *Rock Art Research* 24(1): 59–64.
- GORING-MORRIS, A. N. 1998. Mobiliary art from the Late Epipalaeolithic of the Negev, Israel. *Rock Art Research* 15(2): 81–88.
- GROUCUTT, H. S. and M. D. PETRAGLIA 2012. The prehistory of the Arabian Peninsula: deserts, dispersals, and demography. *Evolutionary Anthropology* 21: 113–125.
- HUBER, C. 1899. *Inscriptions Racueils Dan's l'Arabie Centrale*. Paris.
- HUYGE, D., A. WATCHMAN, M. DE DAPPER and E. MARCHI 2001. Dating Egypt's oldest 'art': AMS ¹⁴C age determinations of rock varnishes covering petroglyphs at El-Hosh (Upper Egypt). *Antiquity* 75: 68–72.
- INGRAHAM, M., T. JOHANSON, B. RIHANI and I. SHATLA 1981. Preliminary report on a reconnaissance survey of the northwestern province (with a note on a brief survey of the northern province). *Atlatl* 5: 59–80.
- JÄCKLI, R. 1980. Rock art in Oman: an introductory presentation. *Bulletin of the Historical Association of Oman* 5: 31–33.
- JENNINGS, R. P., C. SHIPTON, A. AL-OMARI, A. M. ALSHAREKH, R. CRASSARD, H. GROUCUTT and M. D. PETRAGLIA 2013. Rock art landscapes beside the Jubbah palaeolake, Saudi Arabia. *Antiquity* 87: 666–683.
- JENNINGS, R., A. PARTON, H. S. GROUCUTT, L. CLARK-BALZAN, P. BREEZE, N. A. DRAKE, A. ALSHAREKH and M. D. PETRAGLIA in press. Late prehistoric rock art landscapes at Shuwaymis, Saudi Arabia.
- JONGBLOED, M. 1994. Petroglyphs in Wadi Ashwani, Fujairah. *Tribulus* 4(2): 24.
- JUDD, T. 2007. Presumed cattle petroglyphs in the Eastern Desert of Egypt: precursors of classical Egyptian art? *Rock Art Research* 24(1): 65–78.
- JUNG, M. 1991. Bronze Age rock pictures in north Yemen. *East and West* 41: 44–78.
- JUNG, M. 1994. A map of southern Yemen rock art with notes on some of the subjects depicted. *Proceedings of the Seminar for Arabian Studies* 24: 135–155.
- KAUFMAN, D. 1999. A unique engraved object from the Epipalaeolithic of Israel. *Rock Art Research* 16(2): 109–112.
- KHAN, M. 1985. Rock Art and Epigraphic Survey of northwestern Saudi Arabia. *Atlatl* 9: 14–28.
- KHAN, M. 1988a. Rock Art and Epigraphic Survey of northern Saudi Arabia. *Atlatl* 11: 61–75.
- KHAN, M. 1990b. The problem of inter-regional cultural/iconographic contacts in prehistory. *Atlatl* 13: 35–41.

- KHAN, M. 1991. Recent rock art and epigraphic investigations in Saudi Arabia. *Proceedings of the Seminar for Arabian Studies*, University of London.
- KHAN, M. 1993a. *Prehistoric rock art of northern Saudi Arabia*. PhD thesis, University of Southampton, U.K., published by the Ministry of Education, Department of Antiquities and Museums, Riyadh, Saudi Arabia (bilingual English/Arabic).
- KHAN, M. 1993b. *Origin and evolution of ancient Arabian inscriptions* (bilingual English/Arabic). Ministry of Education, Kingdom of Saudi Arabia.
- KHAN, M. 1996. Rock art research in the Arabian Peninsula, Levant and Anatolia. In P. Bahn and A. Fossati (eds.), *News of the world* 1, pp. 95–103. Oxbow Publications 72, Oxford.
- KHAN, M. 1998. A critical review of rock art studies in Saudi Arabia. *East and West* 48(3–4): 427–437.
- KHAN, M. 2000a. *Wusum — the tribal symbols of Saudi Arabia* (bilingual English/Arabic). Ministry of Education, Kingdom of Saudi Arabia on the occasion of “Riyadh, the Capital of Arabian Culture 2000”.
- KHAN, M. 2000b. Bir Himma — the center of prehistoric art and culture. *Adumatu* 6: 37.
- KHAN, M. 2005. Jubbah — the most prominent rock art site of Saudi Arabia. *Indo-Koko-Kenkyu* 26: 63–72.
- KHAN, M. 2007. *Rock art of Saudi across twelve thousand years*. Ministry of Education, Riyadh, Saudi Arabia.
- KHAN, M. 2008. *Rock art studies (how to study rock art)*. Ministry of Education, Riyadh.
- KHAN, M. 2011. *Jubbah, the land of golden sands and the lost civilization of Arabia*. Saudi Commission for Tourism and Antiquities, Riyadh.
- LAHAFIAN, J. 2004. Petroglyphs of Kurdistan. *Rock Art Research* 21(1): 3–10.
- LAHAFIAN, J. 2010. Cupules in Kurdistan rock art. *Rock Art Research* 27(2): 177–184.
- LIRITZIS, I., A. VAFIADOU, N. ZACHARIAS, G. S. POLYMERIS and R. G. BEDNARIK 2013. Advances in surface luminescence dating: new data from selected monuments. *Mediterranean Archaeology & Archaeometry* 13.
- MCCLURE, H. A. 1976. Radiocarbon chronology of late Quaternary lakes in the Arabian desert. *Nature* 263: 755–756.
- MCCORRISTON, J. and L. MARTIN 2009. Southern Arabia's early pastoral population history: some recent evidence. In M. D. Petraglia and J. I. Rose (eds.), *The evolution of human populations in Arabia*, pp. 237–250. Springer Verlag, New York.
- MASRY, A. H. 1974. *Prehistory in northeastern Arabia: the problem of interregional interaction*. Field Research Projects, Coconut Grove, Miami, Florida.
- MELLAART, J. 1975. *The Neolithic of the Near East*. Thames and Hudson, London.
- MUSIL, A. 1914. *Arabie Petrea*. Holder, Vienna.
- ONTANON-PEREDO, R. 2013. Report on the ICOMOS advisory mission to the property “Rock Art in the region of Hail”, Saudi Arabia, 10–17 April 2013.
- PARR, P. J. 1977. *Archaeological sources for the early history of north-west Arabia*. Proceedings of the first international symposium, University of Riyadh, Vol. 1, Part 1.
- PARR, P. J. and J. E. DAYTON 1970. Preliminary survey in N.W. Arabia 1960. *Bulletin of the Institute of Archaeology* 9: 193–242.
- PARR, P. J., J. ZARINS, M. IBRAHIM, J. WAECHTER, A. GARRARD, C. CLARKE, M. BIDMEAD and H. AL-BADR 1978. Preliminary report on the second phase of the northern province survey 1397/1977. *Atfal* 2: 29–50.
- PETRAGLIA, M. D., A. M. ALSHAREKH, R. CRASSARD, N. A. DRAKE, H. GROUCUTT, A. G. PARKER and R. G. ROBERTS 2011. Middle Paleolithic occupation on a Marine Isotope Stage 5 lakeshore in the Nefud Desert, Saudi Arabia. *Quaternary Science Reviews* 30: 1555–1559.
- PETRAGLIA, M. D., A. ALSHAREKH, P. BREEZE, C. CLARKSON et al. 2012. Hominin dispersal into the Nefud Desert and Middle Palaeolithic settlement along the Jubbah palaeolake, northern Arabia. *PLOS ONE* 7(11): e49840.
- PETRAGLIA, M. and A. ALSHAREKH 2013. Palaeodeserts Project: 2013 fieldwork report. University of Oxford, UK – King Saud University, Saudi Arabia.
- PHILBY, H. 1952. *Arabian highlands*. Cornell University Press.
- PRESTON, K. 1976. An introduction to the anthropomorphic content of the rock art of Jebel Akhdar. *Journal of Oman Studies* 2: 17–38.
- REDFORD, S. and D. B. REDFORD 1989. Graffiti and petroglyphs old and new from the Eastern Desert. *Journal of the American Research Centre in Egypt* 26: 3–49.
- REIMER, H. 2009. Prehistoric rock art research in the Western Desert of Egypt. *Archéo-Nil* 19: 31–46.
- ROSENBERG, T. M., F. PREUSSER, D. FLEITMANN, A. SCHWALB, K. PENKMAN et al. 2011. Humid periods in southern Arabia: windows of opportunity for modern human dispersal. *Geology* 39: 1115–1118.
- SCHULTZ, E. and J. W. WHITNEY 1986. Upper Pleistocene and Holocene lakes in the An Nafud, Saudi Arabia. *Hydrobiologia* 3: 175–190.
- THOMAS, H., D. GERAADS, D. JANJOU et al. 1998. First Pleistocene faunas from the Arabian Peninsula: An Nafud Desert, Saudi Arabia. *Comptes Rendus Academie Sciences* 326: 145–152.
- WEINSTEIN-EVRON, M. and A. BELFER-COHEN 1993. Natufian figurines from the new excavations of the el-Wad Cave, Mt Carmel, Israel. *Rock Art Research* 10(2): 102–106.
- WINNET, F. V. and W. C. REED 1979. *Ancient records from north Arabia, 1962 Expedition*. Toronto.
- WINKLER, H. 1938. *Rock drawings of southern Upper Egypt*, Vol. 1. EES, London.
- WINKLER, H. A. 1952. The origin and distribution of Arab camel brands. *Supplement of the Journal of American Oriental Research* 72(4): 1–26.
- ZARINS, J. 1982. Rock art of Saudi Arabia. *Archaeology* 20:25.