The Unfenced Desert

Towards a strategy for eco-tourism development in protected areas in the Kingdom of Saudi Arabia

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“Environmentally-oriented tourism, or eco-tourism, is one of the most promising approaches to making protected areas economically productive, because at least in theory it is non-consumptive and can enhance rural economic productivity while reducing environmental costs. In reality eco-tourism requires careful management to live up to its name, and avoid negative impacts on wildlife resources upon which it depends.

Tourism is bound to increase in Saudi Arabia, and the National Commission for Wildlife Conservation and Development bears a major responsibility to take the lead in providing models that are truly environmentally sensitive. What is needed is a set of policy guidelines and some working examples to ensure that tourism in protected areas becomes eco-tourism in the full sense of the word.”

SUMMARY

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Since 1986 the National Commission for Wildlife Conservation and Development (NCWCD) has been charged with the protection of wildlife in Saudi Arabia, principally through the creation and management of a network of protected areas. Until recently the NCWCD protected area estate, numbering some 14 sites, has been managed through a preservationist approach under which local communities and other stakeholders have been denied access to natural resources, and receive few benefits. The NCWD has acknowledged that this approach is unsustainable, particularly in the face of shrinking government funding.

Eco-tourism, nature-based tourism that protects the environment and enhances the well-being of local communities, provides a potential solution to these problem. The value of both domestic and international tourism is recognised in Saudi Arabia and moves are underway to develop the national tourism industry. However, tourism development in Saudi Arabia has proceeded without environmental protection regulations, and negative impacts are already evident in high-use regions.

The NCWCD has a window of opportunity in which to develop eco-tourism within selected protected areas; such development should be co-ordinated within a comprehensive strategy for eco-tourism. Such a strategy would, inter alia, ensure that the principles of true eco-tourism are upheld, and would provide examples of best practise for national planning and regulation.

This study aims to set out a framework for strategic planning for eco-tourism within Saudi Arabia’s wildlife protected areas, by drawing on a review of the current state of the tourism industry, and on an examination of public attitudes to outdoor recreation, wildlife and protected areas.

The draft framework presented here is built around a vision statement; four objectives relating to conservation, education, recreation and community participation; seven general principles considering conservation, public enjoyment and education, rural economy, development and design, marketing and promotion, and research and monitoring; and ten proposed topics of action.
Chapter 1

“Sound eco-tourism, if it is to move beyond small individual projects and become a set of principles and practises on which tourism is based, will require careful planning and implementation.”

Martha Honey (1999)

Introduction

It is hard to grasp the speed and scale of changes that have taken place within the Kingdom of Saudi Arabia in the last 50 years. The revenue generated by the exploitation of oil fields that amount to around a third of the world’s proven reserves has enabled rapid and sustained expansion of infrastructure and services in a land that in the early part of last century comprised a series of warring sheikhdoms. Traditional lifestyles, such as nomadic pastoralism, which had eked subsistence livelihoods out of ephemeral and patchy natural resources, have changed also. The application of modern technology has freed agriculture from regulation by natural variation in rainfall and plant growth, and together with the breakdown of tribal grazing lands has allowed the over-exploitation of desert vegetation. The new-found ability to locate and tap ancient water stores has allowed the growing of new crops, but sometimes at the costs of soil degradation. The use of all-terrain vehicles and automatic weapons has vastly increased the impact of hunters on wildlife, enabling them to push deep into once remote regions, and to kill many animals in a short period of time. A rapidly expanding human population has placed increased demands on natural resources and habitats. All these factors have combined to reduce the numbers, diversity, range and habitat of native species of plants and animals.

These detrimental changes to the natural environment have not gone unnoticed, and although the concept of conserving areas of land for special use is thousands of years old in Arabia, true wildlife protected areas have been in existence in Saudi Arabia only since the mid 1980s. The National Commission for Wildlife Conservation and Development was created in 1986 to oversee the creation and management of a network of protected areas to conserve native wildlife. The urgency of the task facing the NCWCD lead to the adoption of a preservationist approach to protected area establishment during its first decade of operation. Large tracts of land were set aside
from human use in order to conserve representative portions of key habitats and the wildlife these supported. A rational network of some 110 sites was originally envisaged, but increasing public, as well as government ministry opposition to an exclusionary management policy has delayed the creation of new sites, and by 1999 the NCWCD’s protected area estate nominally consisted of 14 sites plus two research/captive breeding stations.

The problems facing the management of wildlife protected areas in Saudi Arabia are no different in substance from those facing many strict protected areas throughout the world: lack of public support; lack of governmental funding, and lack of local community involvement. There has been increasing realisation among the global conservation community that a preservationist approach to protected area management is neither a sufficient nor sustainable option, and that while strict protection will remain necessary and appropriate in certain circumstances, increasing attention should be paid to the effective integration of conservation objectives with human development needs, particularly those of local, rural communities. In the last few years the NCWCD has sought to increase the involvement of local stakeholders in all aspects of the creation and management of new protected areas, but a major hurdle has yet to be overcome. To date, the existence of a protected area has meant a net loss of benefits for local communities. To some extent this has been offset by the employment of local people as rangers and the use of local services, but shrinking government funding relative to a growing protected area estate makes this an unsustainable approach in the long term. What is needed are ways in which to both increase tangible benefits to traditional stakeholders, and decrease the reliance on government funded management.

Any way you look at it, leisure tourism is booming as an industry of global importance, and one of the fastest growing sectors is nature-based tourism. The awareness that nature tourism has a very real potential to degrade the very resources on which it is based, whether cultural or environmental, combined with consumer demand for low impact visits to relatively pristine areas, spawned the sub-branch of eco-tourism, or sensitive and informed tourism to natural sites which seeks to minimise impacts on the one hand, and provide conservation benefits on the other. True eco-tourism would appear to carry the potential to solve the problems facing wildlife protected areas: it could generate revenue, increase public exposure and thereby improve public support, and could provide a means to empower local communities to manage and conserve the natural environment as an alternative means of livelihood. But to do all this, tourism developments, particularly those in and around protected areas, need careful planning so that the impacts are indeed minimised, and the expected benefits do indeed accrue to the right targets.
Aims of the study

In Saudi Arabia there are central Government moves to support an expansion of tourism, primarily domestic tourism, but with the potential for carefully regulated international tourism. Even today the thriving domestic tourism industry in Saudi Arabia exploits the scenic beauty of the Kingdom’s mountains, coasts and desert regions. But the industry is development driven and the strain is already starting show in high-use areas such as the Asir mountains - a favourite holiday destinations for Saudis escaping the baking heat of the plains. The NCWCD therefore has a window of opportunity in which to address the problems facing its protected areas through the development of sensitive and carefully regulated tourism - eco-tourism - in selected sites, and in so doing could make a contribution to the environmentally sensitive management of nature tourism elsewhere in the Kingdom. There is a danger however, that protected area tourism proceeds piecemeal, driven by the private sector and without an overall plan. The aim of this study is therefore to provide a basis for the NCWCD to develop a comprehensive strategy for the development of eco-tourism in wildlife protected areas in Saudi Arabia.

The intention here is not to draft such a strategy - a policy document produced by a lone expatriate runs the very real risk of omitting important cultural factors, and would certainly lack a sense of broad ownership within the NCWCD. Such a strategy would end up gathering dust on a shelf. The objectives rather are threefold:

1) to provide a starting point which considers the state of the domestic tourism industry; the potential role of the NCWCD, current patterns of leisure tourism; public attitudes to wildlife and the potential for interest in developing protected area tourism;

2) to make an assessment of the assets that the NCWCD owns within its protected area estate, and a means to determine the suitability and priorities for tourism development;

3) to bring 1) and 2) together to sketch out a framework for developing an eco-tourism strategy.

Structure of the report

With these objectives in mind the report has been divided into six sections. Methods and a summary of the aims and approaches taken for each section is given below.
Chapter two reviews global changes in approaches to protected area management and community involvement; examines the growing importance of the tourism industry, and considers the potential for eco-tourism to contribute to protected area management, and thus provides NCWCD planners with background information on the general issues. This chapter has been compiled through a review of the literature, including industry statistics, internet websites and NGO newsletters, and IUCN publications.

Chapter three provides background information about the natural history, political and economic change in Saudi Arabia, and gives an overview of the recent history of conservation management. The aim of this section is to indicate the diversity of landscapes, habitats and wildlife, a legacy of the Arabian Peninsula’s close relationship with Africa and with Asia. This section concludes with a comparison of four wildlife protected areas to demonstrate three things: 1) that a preservationist approach to protected areas has only met its conservation objectives with fenced sites; 2) that without improved relationships with local communities, unfenced areas suffer on-going problems of encroachment and poaching of native species, and 3) the NCWCD has acknowledged these difficulties and is moving towards greater community consultation for protected area creation and management. This chapter was constructed through a review of the literature, including both published and unpublished source material, the latter comprising reports by NCWCD and other Saudi Government agencies, and supplemented by reference to conference proceedings and presentations.

Chapter four assesses the current state of the Saudi Arabian tourism industry, examining its unique features, its administration, environmental impacts and problems. Because available information consisted only of limited Government pamphlets and in-house publications in Arabic, information for this section was compiled largely through interviews and surveys, including the circulation of a questionnaire to a sample of tourism operators to gauge industry attitudes to wildlife, protected areas and the potential for nature-based tourism development. The questionnaire was compiled following initial interviews with a number of tourism related businesses. It was then translated into Arabic and faxed or mailed to over 40 travel agencies and tour companies. It soon became apparent that there was little current interest in nature-based tourism and few completed questionnaires were forthcoming. Consequently information was obtained from personal interviews with Government officials, particularly senior members of the Chamber of Commerce and including the co-chairman of the National Tourism Committee.
Chapter five presents the results of questionnaires designed to assess public patterns recreation and domestic leisure tourism, and public attitudes to wildlife and protected areas. Circulation of questionnaires was deemed an appropriate approach given the lack of published studies or recent information on public attitudes and patterns of domestic tourism. The aim was on one hand to determine if there existed a potential market for tourism development in wildlife protected areas and the forms this could or should take, and on the other to provide a basis and direction for environmental education programmes in conjunction with protected area visits. This section was felt to be especially important for future planning, particularly in order to avoid the trap whereby expatriate consultants do not adequately take into account regional and cultural factors. Two targets were chosen for the questionnaires: students - the tourists and wildlife protectors of the future, and adult males, including single men and heads of families. Interviews with preliminary focus groups were used to construct trial questionnaires that were circulated amongst a sample from the two target groups. Feedback from these initial responses suggested modifications. Final drafts of the two questionnaires were translated into Arabic, and crossed translated back into English by a third party to check accuracy and lack of ambiguity. The student questionnaire was distributed to groups visiting the National Wildlife Research Center in Taif, throughout 1999. The tourist questionnaire was distributed to most of the main urban areas throughout Saudi Arabia by staff of the NCWCD. Questionnaire responses were compiled into an Excel database for analyses.

Chapter six comprises a review of the NCWCD’s protected area estate and the establishment of a method to assess the suitability of individual sites for tourism development and to rank these in order of priority. More than any other section, the output from this review will provide in one location the information needed to proceed with planning. A large amount of data was generated in the review of 12 sites; this has been placed in an appendix in order that this report may function in the longer term as a resource document. A wide range of source material was consulted, including publications, unpublished reports, protected area management plans and NCWCD policy documents. In addition, visits were made to nine of the 12 sites assessed, and discussion held with both rangers and co-ordinators of protected areas. The review of protected areas was presented for discussion to NCWCD staff during a general meeting, and checked in detail for accuracy by staff of the NCWCD’s departments of protected areas and planning.
Chapter seven sets out the framework for an eco-tourism development strategy. It was not the intention here to draft a strategy, again because of possible cultural biases, but also because to function effectively such a policy document needs to strive for wide input and ownership. In formulating the components of a future eco-tourism strategy were identified, including aspects such as: funding mechanisms; linkages with other government agencies; partnerships with the private sector; and the assessment and mitigation of impacts. An attempt was made also to set down some principles for eco-tourism in Saudi Arabia, with the belief that it is necessary for the NCWCD to set guidelines and examples of best practise. To work towards presentation of a common basis for future planning, chapter seven arose out of a formal presentation given by the author to NCWCD staff, followed by general discussions. This was followed up with a facilitated session attended by a small core of staff from the NCWCD’s departments of protected areas, monitoring, planning, research and studies, with IUCN input. The aim also in these sessions was to ensure that the framework presented here for future protected area eco-tourism planning would mesh with concurrent planning for wider nature-based tourism development, both within NCWCD controlled sites, and within a projected national tourism development strategy.
Chapter 2

“"The historical approach of establishing national parks that are somehow isolated from the greater society has been overtaken by a new approach to conservation of species and ecosystems…"”
Our Common Future (WCED 1990)

Global trends in protected area management, and the potential role of eco-tourism.

Trends in PA Management: The integration of conservation and sustainable development.

“If we our treat national parks, nature reserves and protected areas as ‘islands set aside from human use’ they will come under increasing…risk of submergence in a human sea.”
Martin Holdgate, IUCN Director General, 1989.

“The preservationist approach [to protected areas] requires an essentially militaristic defense strategy and will almost always heighten conflict.”

The earliest development of areas of natural beauty for recreation involved the taming of small patches within a sea of wilderness so that people could enjoy nature without its associated discomfits and dangers. This was the concept behind the development last century of a spa utilising the hot springs at Banff, Canada. Surrounded by a vast wilderness of mountain forests the early visitors to the Banff hot springs must have felt that human impact on nature was negligible.

It was not to remain negligible however, as expanding human populations and growing industrialisation increased the potential for humans to change the natural environment. In recognition of this threat to scenic natural sites, and with awareness of the value of such sites for human recreation, the world’s first national park was created at Yellowstone in 1872. For many decades afterwards the concept of the national park was shaped by the Yellowstone model to be the protection of special sites set aside from the ravages of ordinary use (Wells and Brandon 1992; my emphasis). Other countries soon followed, with national parks established in Australia (1979), Mexico (1898) and Argentina (1903) (Ceballos-Lascurain 1996); one hundred years after the creation of Yellowstone there were around 1000 national parks world-wide (Lucas 1992).

The increase in numbers of such protected sites brought with it increased awareness of the wider role that protected areas could and should play (Wells and Brandon 1992), and by the late 1960s there was a a growing realisation that a “preservationist approach” was not always appropriate (Honey 1999).

The World Conservation Strategy (IUCN 1980) explicitly acknowledged for the first time that surrounding communities tend to bear the costs of protected areas but receive few if any benefits, and called for the linking of protected area management with the economic activities of local communities. This was endorsed by the 1982 World Congress on National Parks and Protected Areas (WCNPPA), which called for increased consideration of the role of local people in protected area management.
In 1987 the report of the World Commission on Environmental Development (WCED) introduced the concept of sustainable development, emphasizing the need to integrate and balance the objectives of environmental conservation and human development (WCED 1987). The principles of sustainable development were further developed in Caring for the Earth (IUCN et al. 1990), in which the wider functions and benefits of a protected area system were recognised. It made clear links between the ecological (conservation of biological diversity; protection of ecosystem services (sensu Daily 1997) and economic (provision of income and employment) potential of a rational system of protected areas.

These shifts in the way in which protected areas were viewed came to a head in 1992 at the IVth WCNPPA, held in Caracas. The delegates to the congress recognised that the “island mentality” (McNeely 1993) view of protected areas was fundamentally incompatible with the principles of sustainable development, ignoring as it does the relationships that may exist between people and their traditional lands. Protected areas cannot exist without community support. The Caracas Declaration clearly stated that the establishment and management of protected areas: must be sensitive to the needs of local people; must attempt to inform and educate the general public about environmental concerns so as to gain their support; must develop mechanisms to involve all sectors of society; must develop the education role; and must develop ways in which to generate revenue and share such benefits equitably among all stakeholders. In a wider perspective these principles were placed firmly on the global conservation agenda with the publication of output from the United Nations Conference on Environment and Development, the 1992 Rio Earth Summit (Keating 1993).

The message was unambiguous - the old human exclusion national park model of was not a sustainable nor sufficient approach in which to integrate environmental conservation and human development in all situations. Clearly other models were needed in order to increase the management role of public and private sectors and build relationships with local communities. There was also increasing realisation that few sites were free from the affects of human modification and that this modification may actually have resulted in ecosystems and traditional land-use systems worthy of preservation in their own right.

In 1994 the IUCN issued guidelines for protected area management categories in recognition of the increased utility of having a variety of designations with which to fulfil the needs of a range of sites and circumstances; from the strict protection of key natural sites, through to the management of highly modified landscapes of cultural and biological importance (IUCN and WCMC 1994). The IUCN categories I through to IV were based on the primary management objectives of a site, and provided a range of tools with which to link protected areas to the surrounding region across the full spectrum of ecological, economic, political and cultural conditions. A recent review indicated that by 1997 formal protected areas of all designations covered over 8% of the world’s land area (IUCN 1998).

The management of any protected area, particularly those in developing countries, will face three challenges: a lack of funding in the face of decreasing government budgets for conservation, often arising from a lack of appreciation of the revenue earning potential of protected areas; a lack of public support stemming from poor conservation literacy in the general populace; and the need to increase the participation of and devolve tangible benefits to adjacent communities (Sale 1992).

Could tourism development in protected areas provide a panacea for all these problems? The next section examines the global economic importance of the tourism industry, and investigates the special role that true eco-tourism could potentially play in protected area management.
The global importance of tourism and the potential role of eco-tourism in protected area management.

"Protected areas can be especially important for development when they [inter alia] provide income and employment, notably from tourism."

Caring for the Earth (IUCN et al 1991)

"This rapid expansion [of tourism] represents both a threat to fragile ecosystems and an opportunity for harnessing resources for conservation and community development."

Russell Mittermeir, Conservation International (quoted in: Sweeting et al. 1998)

Any way you look at it, as a result of global trends for increasing wealth and leisure time, and decreased travel costs and restrictions (Ceballos-Lascurain 1996), tourism has become a massively expanding industry of global importance. A number of statistics and predictions abound including, to cite just a few: by the 1990s tourism was on par with oil as the largest (legitimate) business in the world (Honey 1999); in 1997 613 million international tourist arrivals world wide generated U$448 billion (Sweeting et al. 1998); the World Tourism Organisation (WTO) predicts that in 2000 travel spending will reach U$4.2 trillion, and by 2010 there will be over 1 billion tourist arrivals per annum (WTO website). The economic impacts are massive; tourism is now the number one employer, providing jobs for some 230 million people - 10% of the global workforce (World Travel and Tourism Council (WTTC) website). Although the statistics relating to domestic tourism are poor, the evidence suggests that more than 3 billion people travel within their own country each year (Sweeting et al. 1998). No wonder then that many countries, particularly developing nations, are actively encouraging tourism development as a means to create employment and generate foreign currency.

But as the industry has grown, its character has changed. The average tourist has become older, better educated and better informed, with an increased awareness of what is available, and seeking more authentic environmental or cultural experiences. Such visitors will select sites that have not been degraded by insensitive tourist development. There has been a decrease in visitor interest in sun/sea/sand, and an increase in visits to less developed sites of natural beauty, along with increased host disillusionment in the high social and environmental costs of mass tourism. Consequently the fastest growing sector of the tourism industry is nature-based tourism; this has been defined as any tourism that is directly dependent on the use of natural resources in a relatively undisturbed state - even if that use is neither wise nor sustainable (Ceballos-Lascurain 1996). In recent years 40-60% of international tourists are estimated to focus their travel on the enjoyment of nature (TES website).

The growth in this sector threatens the very resource on which it is building, but also provides an opportunity to garner benefits for both conservation and community development. The combination of threat and potential benefits lead to pressure from a number of interests, including scientific and conservation bodies, tourists and the travel industry itself, for more environmentally aware nature tourism. Attempts were made from the late 1970s to apply the principles of sustainable use to nature-based tourism. The concept of “ecological tourism” or “ecotourism” emerged in the early 1980s; defined expansively by the IUCN’s Ecotourism Programme as:

“environmentally responsible travel and visitation to relatively undisturbed areas, in order to enjoy and appreciate nature that promotes conservation, has low visitor impact, and provides for beneficially active socio-economic involvement of local populations”

(Hector Ceballos-Lascurain 1996);
and more succinctly by the Ecotourism Society as:

“responsible travel to natural areas that conserves the environment and sustains the well-being of local people”

(Western 1993).

Since the late 1980s, the principles of ecotourism have been endorsed by a number of major tourism associations, including the WTO, the Travel Industry Association of America (TIA), the WTTC, and the American Society of Travel Agents (ASTA) (Honey 1999). But despite the attention given to ecotourism by the industry, by the media, and by the travelling public, the consensus is that there are currently few examples of ecotourism projects which fulfil all the criteria (Honey 1999); as Martha Honey (1999) quotes: “Ecotourism is now used indiscriminately to describe anything related to nature, or unrelated to conventional tourism” (Kurt Kutay, tour operator). So where does this leave us with regard to protected areas?

Ecotourism will focus on the best examples of a country’s biological and cultural assets. It’s no coincidence then that “one of the most urgent points of intersection between ecotourism and conservation” (Boo 1993) occurs within protected areas - sites chosen because they are a nation’s biological and cultural jewels.

While protected areas may obviously benefit tourism, ecotourism can benefit protected areas through: generation of revenue, with the potential for this to be channelled back into protected area maintenance and management; and the creation of jobs in the region and the promotion of economic development, particularly for local communities; exposure of the public to the natural world, with opportunities for improved environmental education and awareness, and consequently increased public support; along with enhanced conservation management of the site (Boo 1993). These are discussed in more detail below.

**Economic benefits**

Economic benefits are not easily calculated since it is not simply a matter of adding up all the money that tourists spend. That money needs to accrue to local and national economies by being spent and re-spent locally. Leakage, or loss of revenue due to use of imported goods and services, will reduce actual gains (Fish 1991). For developing countries the World Bank has estimated that around 55% of tourism profits may leak back to the developed world (Lindberg 1991).

Ecotourism will generate revenue, and this revenue may be important for three sectors, each of which will improve the management capacity of a protected area.

**The protected area itself**: funding may accrue to the protected area and can supplement centralised funding to provide some degree of economic autonomy and a financial buffer in the event of central cuts. In addition, once a protected area starts to generate funds it may gain the attention of central government finance staff and attain new status. Ecotourism funds will enable a protected area manager to marshal economic arguments to support conservation initiatives and allow strict cost-benefits analyses rather than appeals to aesthetic or future value of natural areas.

**The local economy**: will benefit, either directly through provisions of services and products to visitors and the development of new markets, and indirectly through linkages to other sectors of the tourism industry as well as burgeoning markets to serve increasing local spending power. Strength in local economy will translate to strength for the protected area which must coexist with local communities. Improved local wealth will reduce reliance on subsistence means, reduce encroachment into the reserve and reduce poaching. However, one critical aspect of eco-tourism relating to economic benefits is,
what percentage of tourism revenue accrues to or otherwise benefits local communities in and around tourist destinations. If leakage nationally may be in excess of 50%, then local leakage is likely to be extremely high, due to imports, changes in land ownership, the ownership of operations by outside concerns, and an influx of labour. For example, in Grindewald, a resort in Berner Oberland, in 1982 only 12 out of 75 jobs in tourism were filled by locals (Mueller 1991), while in Santa Cruz Bay, Mexico, only 27% of the labour construction force on a tourism development were locals (Long 1991).

The private sector: can be an important source of funding for development of tourism projects. In developing appropriate facilities and services outside, or even within a protected area the private sector will improve the quality of visitor experience and thereby increase visitor numbers. Without private sector involvement the protected area management and local communities may on one hand be unable to obtain sufficient start-up funding for tourist facilities, and on the other hand may not have the expertise to run effective tourist promotion and other operations. Partnerships with the private sector, with control over the scale and nature of tourism being held by the protected area and local community management structures, may be essential.

Social benefits
Social changes associated with ecotourism will affect three factors.

a) Employment opportunities will increase, both within the protected area and within the surrounding community. These employment opportunities may relate directly to the provision of tourism-related services, such as tour guides, or may be possible through increased tourism revenue.

b) Improved local economy will combine with the development of infrastructure and services to support tourist visitors and will have the effect of improving local living standards. For example, local residents will benefit from such things as improved roads, reliable supplies of clean water and access to modern health services, even though the development of these was prompted by tourism. Improved living standards will reduce reliance on natural resources within and around a protected area, will further strengthen local support for the reserve.

c) Cultural support. If sensitively developed, in some areas ecotourism may be a stimulus for a revival in traditional arts and craft. Support and encouragement of local culture may be a key part of the characteristics of a protected area, particularly a category V Protected Landscape, the conservation of which can be as important to maintaining the character of the area as protecting the plants, animals and scenery.

Public Awareness and Education benefits
Ecotourism in association with a protected area provides the means to improve public awareness of conservation issues within three target groups.

a) Tourists: Access to the protected area should be in conjunction with learning opportunities. These may take place within a visitor centre setting, with interpretive displays within the area, or through talks and guided walks.

b) Local communities: Increased support for a protected area due to increased financial benefits is only part of the goal. Opportunities will exist whereby local communities too can gain a greater understanding of conservation issues and methods and thereby support may be sustained even in the face of fluctuating tourist revenue.

c) Regionally/Nationally: Since tourists can be domestic as well as international, environmental public awareness associated with ecotourism operation in and around a protected area may raise national awareness and therefore national level support of conservation issues.

Conservation benefits
Tourism impacts must be minimised and the protected area authority must retain ultimate control over tourism development within, and if possible, around the reserve. However, having numbers of environmentally sensitive and aware visitors within a protected area may increase protection. Visitors may act as unofficial rangers, reporting
infringements, environmental damage or other management problems, or even just acting as wildlife observers to provide information on the status and distribution of key species. With increased local community appreciation of and support for the protected area there may be a decrease in poaching and other violations, and prevention of such impacts may become more a community concern. In a wider sense, community support for the protected area and awareness of the need to conserve natural resources to maintain tourist revenue will steer development since tourism would effectively be one development option. Without ecotourism the protected area may become threatened by unsustainable development along its boundaries.

Does the above list of benefits sound familiar? It mirrors the challenges facing protected areas under the new management paradigm of sustainable development, as outlined earlier. So, is that our answer? Will ecotourism solve all the problems of protected areas? Not quite that simple. Protected areas are inherently sensitive sites; increased visitor levels will have inevitable negative impacts at a number of levels. Such impacts may be direct, arising from the presence of the tourists, or indirect, due to the infrastructure supporting the industry (Ceballos-Lascurain 1996). These negative impacts can lead to environmental degradation, economic inequity, and sociological change (reviewed in Boo 1990; Ceballos-Lascurain 1996; Roe et al. 1997; and references therein).

**Impacts of Tourism**

**Environmental impacts**

Local scale impacts may be divided into indirect impacts, caused by the infrastructure created to support tourism, and direct impacts caused by the presence of tourists themselves (Ceballos-Lascurain 1996). Indirect impacts will be in common with any form of development and may include loss of natural habitats, changes in flora and fauna in disturbed areas, changes to water catchments and water-flow patterns, increased erosion following loss of stabilising vegetation, site levelling and quarrying, and increased pollution from fumes, waste, noise and light. Direct impacts include impacts on minerals, fossils and soils, impacts on water resources, vegetation and animals, and sanitation and aesthetic impacts (Ceballos-Lascurain 1996).

The degree to which visitors have an impact on the natural environment will vary according to the number, sensitivity and activities of the visitors. High volumes of even well-meaning tourists may exceed environmental carrying capacities and inflict damage through repetition, for instance, compacting and erosion of soil along trails. The Galapagos National Park attract people who are interested in seeing wildlife and are sensitive to its vulnerability; however damage has been inflicted on the Park due to quota revision which allowed 25,000 visitors, rather than the 12,000 visitor-limit necessary to avoid major impacts (Alderman 1994); actual visitor numbers reached nearly 42,000 in 1989 (Wallace 1993). Canadian National Parks (Guardian)

**Social and Cultural Impacts**

Social and cultural effects of tourism include unsustainable changes in the structure of local economies, in particular reliance on tourist dollars and therefore increased vulnerability to changing patterns of tourism due to a number of factors, including the following.

- Local changes in tourist volumes or movements, e.g. when a walking track in the Annapurna area of Nepal was upgraded for vehicles the numbers of visitors moving through the area on foot dwindled almost to nothing (Garforth 1994). With the road able to be covered in a matter of hours rather than 2-3 days, trekkers no longer needed to find food and accommodation along the way. Consequently the local people, who had grown to rely on revenue from providing these services to tourists, were effectively out of business.
Unforeseen or uncontrollable circumstances locally or regionally, such as unexpectedly wet or windy weather, even hurricanes, floods, droughts, or outbreaks of disease or of civil or cross-border disturbance; anything that may prompt potential tourists to seek alternative destinations.

Fashion, for as Child (1995: 220) writes: “Tourism is a fickle mistress.”

The presence of more technologically advanced, or foreign, often Western, visitors may influence local lifestyles, and lead to changes in the use of local products; degradation of living standards, e.g. increased drug and alcohol abuse by tourist workers brought in to the Santa Cruz Bay development, Mexico (Long 1991); and degradation of traditional values or religious and cultural standards; e.g. in the Rolwaling Valley in Nepal tourism induced changes as a result of increased trekking have lead to disintegration of social life in mountain communities due to increased orientation of young people to the outside world, decreased relevance of old-people’s experience, and reduced willingness by young people to attend traditional festivals (Baumgartner 1991).

These negative impacts on protected areas will be exacerbated where the reserve lacks funds, lacks staff, lacks expertise, and above all lacks the necessary planning framework within which to address these deficiencies and is therefore unable to harness benefits for the protected area or for local communities.

At the regional, local and park level the lack of strategic planning becomes critical since economic impacts of well planned tourism can be significant on local communities, but the environmental and social impacts of poorly regulated tourist development may be devastating.

Failure of central government to account for local tourism-related development needs has sometimes resulted in action by regional or local groups, or independent national NGOs to organise and plan tourist development along sustainable lines. Sometimes these efforts may stimulate government action; e.g., regional concern over the negative impacts of tourism in the Annapurna area lead to the formation of the NGO based Annapurna Conservation Area Project in 1986, which aims to minimise impacts of trekking and maximise benefits to local communities (Gurung 1992). These efforts have been supported by special legislation that allows ACAP to retain revenue from visitor fees, revenue that in other cases would go to the general Treasury (Wells 1994).

Elsewhere regulatory initiatives may be less readily accepted by central government. The high profile Campfire programme in Zimbabwe aims to regulate use of wildlife, including trophy hunting, to maximise community involvement in the planning and management of, and financial gain from tourism; however such community involvement is not easily accepted by a government which has retained ownership of communal lands (McIvor 1994).

A number of studies have set out the necessary components for the formulation of national, regional and local tourism plans, indicating the importance of the following (after Boo 1990; Preister 1991; Singh 1991; Lawrence 1994; Ceballos-Lascurain 1996; Roe et al. 1997).

- Identification of information needs and resources.
- Clarity of aims and objectives, i.e. how and where should tourism be developed.
- Multi-disciplinary information gathering to assess tourist attitudes and the potential impacts, scale, types, location and benefits of current and future tourism, to identify primary attractions and to set appropriate parameters for planning policy.
- Analysis, including consideration of tourist markets and global trends, a review of legislative and financial aspects, and setting of carrying capacity guidelines.
- Plan and policy formulation, with:
- policies for the development of infrastructure; training; sectoral links; financial incentives; the establishment of co-ordinating bodies, and regional and local programming.
- guidelines for promotion and marketing, and mitigation of environmental impacts.

Implementation and monitoring.

In general, local level tourism management cannot proceed effectively without national level support, ideally within the framework of an integrated national tourism plan. At a local level the primary concerns include (after Preister 1991; Ceballos-Lascurain 1996).

1) Retention of a proportion of tourism revenue locally, whether for protected area management or local community development, so that revenue does not automatically accrue to the national treasury.
2) Involvement of local communities in planning and management of tourism development, particularly in determining levels of appropriate tourism.
3) Integration of the needs and increasing awareness of sustainability issues in tourist operators and the private sector.
4) Retention of control of tourism development in and around protected areas and other sensitive sites.
5) Provision of co-ordinating frameworks for:
   - assessing proposals;
   - education and training programmes;
   - monitoring.

Two examples of successful local level approaches are:

◊ The Community Baboon Sanctuary in Belize, an initiative by private landowners to protect primate habitat and develop tourism (Cater 1992). The project has enlisted the participation of local community members, initiated an environmental awareness programme, and petitioned the government for support (Alderman 1994).

◊ Smaller scale trekking tourism is being developed at the local level in the Khao Yai National Park in Thailand in a co-operative venture between the Park management, local villages, and national and international NGOs, applying sustainable tourism principles and guided by the Park’s management plan (Brokelman and Dearden 1990).

National Governments have been slow to heed calls to integrate natural resource conservation and the needs of local communities in national development strategies. This is perhaps partly due to the difficulty in assigning or appreciating any economic value to these issues. Protected area tourism is an expanding industry that could either be destructive of natural and cultural resources, or which could bring a multitude of economic, social and environmental benefits.

The message is simple: protected areas must specifically plan for ecotourism.

“With a strategy in place, parks and reserves can minimise the costs of ecotourism and maximise the benefits”

(Elizabeth Boo 1993).

The next chapter examines the cultural, economic and biological context in which conservation programmes have developed in Saudi Arabia, and the challenges which currently face the Kingdom’s network of protected areas.
Chapter 3

The land; the wildlife; social, political, economic and environmental change; and a history of protected areas in Saudi Arabia

“The destruction of the Kingdom’s wildlife and its habitats is an ecological manifestation…attributable as much to socio-economic as to ecological factors, although there is no denying the susceptibility of the delicate arid ecosystems to inappropriate management.”

Graham Child and John Grainger (1990)

Introduction

Much of the care and concern for the conservation of the Earth’s natural resources focuses on the tropics - regions that may be characterised as having high levels of biodiversity and low levels of economic development. In contrast, the Kingdom of Saudi Arabia can be characterised by its relatively low biodiversity and significant economic wealth. On one hand however, the position occupied by Saudi Arabia, between Asia and Africa, warrants concern over the state of its wildlife, while on the other hand, a large Gross Domestic Product does not necessarily translate into effective and efficient national conservation management.

In the following sections I will briefly introduce the basic geology, climate and wildlife of Saudi Arabia, emphasising the unique features of the region. In a little more detail I will then consider the massive political, economic and social changes that have taken place in the last 70 years, and the inevitably impacts these have had on natural resources. Finally, I will bring us up to date with a summary history of wildlife conservation in Saudi Arabia and, by contrasting four wildlife protected areas, conclude with a review of recent trends in protected area management.
“Because of the abundance and excellence of pasturage [Wadi Al-Afal - east of the Gulf of Aqaba] not only supports flocks and herds of all sorts of unspeakably great numbers but also wild camels and, in addition antelopes and gazelles. In response to the abundance of animals which breed there, crowds of lions, wolves and leopards gather from the desert.”

Agartharchides of Cnidus, circa 200 B.C. ("On the Erythraean Sea": in McKinnon, 1990)

The character of the Arabian Peninsula is a reflection of its African origins and its proximity to Asia. Once linked to Africa within the primordial landmass of Gondwana, the Arabian crustal plate, an extrusion of ancient crystalline rock split away some 35 million years ago along the seam that is now the Red Sea - part of the northern portion of the Great Rift Valley (McKinnon 1990; Facey 1993; Thompson 2000). It’s useful to picture the Arabian Peninsula literally as a plate that has slid north-eastwards to collide with Asia. In the west the Arabian Shield has been lifted, exposing Precambrian rocks and forming the mountain chain of the Sarawat escarpment; in the east the Arabian Shelf is sliding under Asia as far as central Iran, creating the shallow Gulf of Arabia towards its eastern edge (Guba and Glennie 1998). Today the distinctive landforms of Saudi Arabia are a legacy of intense volcanic activity near the western margins of the plate which created the harrats - large sheets of now-weathered basalt rock (Thompson 2000), but also attest to wetter periods, the most recent from 10,000 to 5,000 years before present (Nayeem 1990). There are no perennial rivers in Saudi Arabia, but ancient river systems flowed as recently as 3,000 years ago, some now visible only from space (Thompson 2000). Areas in the east have been periodically inundated by the sea and are now overlaid with limestone and accumulations of coastal sand (Bindagji 1980). Added to this are sands from water-abraded crystalline rock. These now fill the basins of the underlying plate, forming the vast sand deserts of the Nafud in the north, and the Rub’ al-Khali or Empty Quarter in the south; these are linked by the curve of the Dahana sandbelt (Bindagji 1980). What were once inland lakes have been transformed by geologically recent increasing aridity to form sabkha.

Saudi Arabia encompasses semi-arid (western Highlands) arid (northern and central steppes) and hyper-arid (Rub’al-Khali) regions; a schema based on moisture availability that takes into account rainfall and ambient temperatures (Meigs 1953, cited in Williams and Tieleman (in press)). The meteorology and climate of the Arabian Peninsula is dominated by the influence of two air masses: the Polar Continental, which blows from the north-east and predominates in winter, and the west to south-west Tropical Continental, blowing mainly in summer. (Fisher and Membery 1998). Inter-annual temperature variation is low and seasonal changes are regular, but mean ambient
temperatures vary greatly between different areas, ranging from 18°C in the far north-west, to 31°C on the south-western coasts (Fisher and Membery 1998). An absolute maximum of 40-50°C has been measured over much of the Peninsula, lower only at the high western elevations (MEPA unpublished data). Rainfall is the main meteorological event of the year, falling between May-June and October-December, but with high inter-annual variation and extreme local patchiness (Mandaville 1990). Total annual rainfall ranges between <50mm in the Rub al-Khali, to >400mm in the south-western highlands (Fisher and Membery 1998).

The dominant feature of Arabia’s floral and faunal elements has been described as one of alternate immigration and isolation, arising from the intermittent presence of land bridges between Africa and Asia, and alternating periods of aridity and high rainfall (McKinnon 1990). Wildlife has originated therefore from the Palearctic (North Africa, northern Asia and Europe), tropical east Africa, and southern and eastern Asia (Kürschner 1998). The fauna present in Saudi Arabia today and in the recent past is a product of a process of influx during pluvial periods, followed by reduction in numbers and range during arid periods, some marked by waves of extinction. Surviving forms have become isolated by shrinking habitat, e.g. Asir juniper forest highlands, leading to relict populations (the *Mimusops* tree groves of the Asir), modified subspecific forms (the Asir magpie *Pica pica asirensis*), and the evolution of distinct endemic taxa (Arabian woodpecker *Dendrocopos doriae*, Yemen thrush *Turdus menachensis*, and Philby’s rock partridge *Alectoris philbyi*; and some 170 plant species in the south-western highlands) (Child and Grianger 1990; McKinnon 1990). The Peninsula’s mammal assemblage too reflects a mixture of Asia (grey wolf *Canis lupus*, red fox *Vulpes vulpes*, Blanford’s fox *Vulpes cana*, marbled polecat *Vormela peregusna*), with a strong African influence (Hamadryas baboon *Papio hamadryas*, sand cat *Felis margarita*, caracal *Caracal caracal*, Rueppell’s fox *Vulpes rueppelli*, honey badger *Mellivora capensis*, genet *Genetta felina*), and the presence of endemics such as the Arabian oryx *Oryx leucoryx* (Child and Grainger 1990; Harrison and Bates 1991).

Saudi Arabia is important also for species which breed outside its borders, but use the Arabian Peninsula as a stepping stone between the western Palearctic and Africa. It’s estimated that 2,000 to 3,000 million birds migrate south across Arabia each autumn (Rands 1989). Some of these approximately 190 migrant species are globally threatened, and all are vulnerable to persecution, particularly during stop offs or when over-wintering on the Peninsula (Rands 1989; NCWCD unpublished data).
Political, economic, social and environmental change in Saudi Arabia

“...oil wealth has unfortunately led to environmental destruction due to insufficient planning and by allowing rural people to emancipate themselves from the ecological constraints that formerly limited their yields, but also prevented wholesale abuses of “their” resources.”

Graham Child and John Grainger (1990)

“With population growth and the prosperity that has come from oil...no institutional framework has emerged that ensures that the people use their wild resources, especially the natural vegetation and wildlife, sustainably.”

Graham Child (1989)

The information in this section has been drawn from the following sources:

- Political history and social change: Allan and Warren (1993); Facey et al. (1993); Finan and al-Haratani (1996); Lacey (1981); Lawrence (1935); Parry (1999).
- Oil exploitation and economic expansion: Child and Grainger (1990); Facey et al. (1993); Grutz (1999); Lacey (1981); Yergin (1991).
- Environmental change: Al-Kahem (1989); Alwelaie (1985, 1989); Chaudhary et al. (1996); Child (1989); Child and Grainger (1990); Fisher et al. (1998); Harrison and Bates (1991); Jennings (1989); Kingery (1971); MAW (1989); Nader (1989);

Saudi Arabia’s recent history has been shaped by three dominant factors: Islam; a charismatic leader; and what amounts to over a third of the world’s proven reserves of crude oil.

The Al Saud family traces its origins in the Najd region of central Arabia back more than 500 years. The so-called 1st Saudi State was created by 1803 following expansion of control by the House of Saud in the late 1700s. This territorial gain was lost in 1818 when Ottoman forces established authority over the holy city of Makkah at the order of the Sultan in Constantinople, and took Dir‘iyah, the Najd regional capital. The Najd was re-taken only five years later by Turki ibn ‘AbdAllah, and the capital of the 2nd Saudi State was based in Riyadh, with only titular control by the Ottomans of the Hijaz, the western provinces.

The son of Turki, Faysal, died in 1865, and rivalry over succession weaken Saudi control of the region, allowing Ottoman incursions. At the same time there was a challenge from the Al-Rashids, a rival dynasty in north-central Arabia, who moved on Riyadh and defeated Saudi forces in 1891. The Saudis were forced to retreat to the fringes of the Rub‘ al Khali, where they were given shelter by the Al Murri tribe - forging a strong bond
of loyalty that persists today. In 1893 the Al Saud family moved to Kuwait, via Qatar and Bahrain.

The birth of the modern Saudi State can be traced back to 1901 when a young man, in his early 20s, gathered 40 men and moved on the capital of Riyadh. In what seems today to have been a relatively minor skirmish, this tiny army seized control of the Musmank fort and thereby returned Riyadh to Saudi hands. His youth notwithstanding, Abdulaziz proved to be a dynamic leader, able to forge essential alliances with local tribes and undermine the Al-Rashid power-base. The open conflict between the two dynasties ended five years later with the death in battle of Ibn Rashid in 1906, and the withdrawal of the Al-Rashids to Hail.

Through a process of conquest, inclusion and marriage Abdulaziz united what had previously been a patchwork of rival sheikhdoms, and moved in 1913 on the Turkish garrison at Hofuf. The next year, in 1914, Abdulaziz re-took the Al-Hasa oasis; significant enough then as the end of Turkish control of central and eastern Arabia, but hugely important in hindsight as it brought under Saudi control the most valuable piece of real estate in the world - the region containing the oil. The disintegration of Turkish authority in the Hijaz after WWI allowed Abdulaziz to move westwards, gaining Hail and the Asir by 1920, and the port at Jeddah and the holy cities of Makkah and Medina by 1927. The authority of the House of Saud was unchallenged. The Kingdom of Saudi Arabia was proclaimed in 1932.

In 1931 Karl Twitchell, an engineer employed by US businessman Charles Crane, undertook a geological survey along the eastern coastline to assess the likely presence of artesian water. Twitchell noted a number of geological features indicative of oil reserves; features similar to those found in Bahrain were oil prospecting was underway. In 1932 Abdullah (Hugh St. John) Philby signed on as a confidential adviser1 to SOCAL (Standard Oil of California), and negotiated a concession with Abdulaziz that gave SOCAL oil exploration rights to an area of 930,000km2 for 60 years.

When oil exploration began in 1933 the government of Abdulaziz was in arrears on payments to its employees following a decline in the numbers of pilgrims to Makkah, then the principal source of income for Saudi Arabia. It was five years and six unproductive wells later, in March 1938, that the SOCAL subsidiary, CASOC (California

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1 As an interesting historical footnote, SOCAL paid Philby 1,000 pounds sterling per month for six months; a sum which enabled him to develop his Jeddah business interests, but also enabled him to pay the Cambridge University fees for his son Kim.
Arabian Standard Oil Company), struck oil with Well No. 7 on the Damman Dome. It soon became evident that Saudi Arabia’s Eastern Province sat over the largest pool of oil in the Middle East.

By the end of 1938 something less than half a million barrels of oil had been produced; by 1944 annual production had increased to eight million barrels, reaching 60 million barrels only two years later. Soon after WWII a joint venture between SOCAL and Texaco created ARAMCO (Arabian-American Oil Company), and oil production was increased in response to Saudi government urging for increased revenue.

Saudi Arabia entered a phase of rapid development that outpaced its share of oil revenues, prompting a re-negotiation of the contract with ARAMCO. In December 1950 a new 50/50 agreement was signed, vastly increasing Saudi Arabia’s oil earnings. In June 1974 Saudi Arabia took a 60% share in ARAMCO, and in 1976, with proven reserves of 149 billion barrels - over a quarter of the world’s reserves - Saudi Arabia assumed ownership of all ARAMCO assets and rights within the Kingdom. Today the proven reserves have been estimated at around 300 billion barrels, nearly a third of the world’s oil, and Saudi ARAMCO is fully Saudi owned and operated.

The impact on Saudi Arabia of the revenue generated by the sale of petroleum products has been massive and sustained. At the peak of oil prices in 1981 Saudi Arabia was making about U$3,000 a second from oil; the main contribution to a U$150 billion GDP. Even today, a single day’s production of Saudi crude oil is sufficient for a car getting 25 mi/gallon to make 48 round trips between the Earth and Mars.

It should be remembered that the unprecedented expansion of infrastructure and services in the last 50 or 60 years has affected a relatively small, culturally conservative population, characterised by strong family and tribal allegiances, but united beneath the umbrella of Islam, the precepts of which form the foundation of Saudi Arabian social and justice systems, and govern the daily lives of all residents. The many benefits of development, the improved transport and communications networks, increasing literacy rates and expansion of the education system; improved health care and reduced infant mortality, to name a few, have been accompanied by some almost inevitable environmental costs.

In the pre-oil days the ability of humans to have an impact on natural resources was limited by relatively low population densities, modest economic means, and a widespread
dependence on subsistence agriculture, including nomadism - an efficient means of exploiting fugitive and seasonally fluctuating plant resources. An increasing human population\(^2\) and an objective of national self-sufficiency in food production has combined with increasing demand for sheep and goat meat and for crop plants. With greater wealth subsistence agricultural systems can be freed from dependence on variation in annual rainfall. The tapping of non-renewable fossil water stores has allowed expansion of wheat growing; in 1989 the Kingdom produced 3.3 million tonnes of wheat, and actually exported 2 million tonnes. In response to the 1950 drought and consequent reduction in livestock numbers (>85% livestock losses in some regions), tribal lands were opened to free grazing by Royal decree in 1953. This was partly a policy aimed at encouraging the Bedouin, the nomadic herders and a political wild-card, to settle; in the 1940s 60% of the population of Saudi Arabia were nomadic, but by 1990 this had been reduced to around 3%. Breakdown of traditional systems of resource conservation opened the way for a 'tragedy of the commons', whereby "individuals using a common resource are encouraged to over-exploit it because the costs of doing so are shared by the whole community, while they alone reap the benefits" (Child and Grainger 1990). This, together with the availability of supplementary feeds, water trucks and the ability to truck livestock to areas receiving recent rain increased herd numbers far beyond the ability of the desert vegetation to support them. Overgrazing in combination with fuel wood gathering and, to a lesser extent the loss of natural vegetation to cultivation and recreation, has threatened both wildlife and rural productivity. Surveys of the Kingdom's rangelands in the 1970s showed that 85% were in a severely degraded state. More recently it has been estimated that over 30% of grazing lands, and 75% of the country is seriously eroded due to impoverishment of the natural vegetation\(^3\). On top of this, the prevalence of all-terrain vehicles and automatic weapons has seen unregulated hunting expand into once remote and inaccessible areas. During last century a number of native species have become extinct, including: Asiatic cheetah *Acinonyx jubatus* (locally extinct 1950s); Arabian ostrich *Struthio camelus syriacus* (totally extinct 1950s); Arabian oryx *Capra ibex nubiana*; Arabian leopard *Panthera pardus nimr*; houbara

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\(^2\) A total fertility rate of seven births per woman makes the Saudi population one of the fastest growing in the world; around 50% of the population is less than 15 years old. Recent figures give a total population of around 23 million, comprising 16 million nationals and some 7 million resident expatriates.

\(^3\) With the removal of government subsidies for supplementary food, and a desire for access to schools there has been a shift from true nomadism to semi-settled livestock herding. Small holdings are becoming less profitable and fewer young people wish to tend herds. It is possible that the next few decades will see a decline in livestock numbers, increased use of imported meat protein, and possibly, an improvement in natural vegetative cover.
bustard *Chlamydotis (undulata) macqueenii*, sand gazelle *Gazella subgutturosa*, and mountain gazelle *Gazella gazella*.

**A recent history of wildlife conservation in Saudi Arabia**

“There is not an animal on the earth, nor any being that wings its flight, but it is a people like unto you.”

*Qur’an 6: 38*

“He it is Who has made you stewards of the earth…”

*Qur’an 6: 165*

Islamic law (Shari’ah) firmly establishes the principles of human stewardship over shared natural resources; acknowledges the direct and indirect benefits provided by wildlife, and grants rights to all living creatures (Bagader et al. 1994). Such principles were subsumed within early tribal land management systems, at least as far back as the time of the Prophet Muhammad (Llewellyn 1998), in which provisions were made for the protection and conservation of plant resources through the creation of fallow lands and specified use areas (*hima*) (Grainger and Llewellyn 1994). Despite the breakdown of tribal grazing lands in the 1950s, a few *himas* in south-western Saudi Arabia continue to be respected locally, and are maintained under five types: no grazing; grazing and cutting permitted; year-round grazing; beekeeping; forest protection (Draz 1969).

Within modern Saudi Arabia responsibility for wildlife conservation has fallen within the remit of a number of government agencies, primary among these have been the Ministry of Agriculture and Water (MAW), the Meteorological and Environmental Protection Administration (MEPA), and the National Commission for Wildlife Conservation and Development (NCWCD). The role of each is considered below.

The MAW was the principle agency responsible for management, improvement, conservation and monitoring of forests, rangelands and wildlife within Saudi Arabia before the establishment of NCWCD in 1986, and the later involvement of MEPA (Al-Hakamy 1989). The MAW has been active in the area of legislation governing the conservation of natural vegetation, and the establishment of water-harvesting areas and reseeding programmes for improvement of rangelands (Iskander 1996), although MAW activities have largely concentrated on the development of agricultural self-sufficiency (Facey et al. 1993). A separate Department of National Parks was created in 1983 with the mandate to establish national parks aimed at the conservation of wildlife, but with
the effective emphasis on the provision of public recreation facilities (Abdelbagi and Bodi 1996).

Established in 1980, the MEPA has responsibility for marine conservation environmental protection, and for the collection and compilation of data from over 30 meteorological stations throughout Saudi Arabia. In recent years MEPA has begun an ambitious project to survey, map and better manage the Kingdom's grazing resources in support of pastoral nomadism (ESON 1994, 1996a & b; Al-Gain 1996). Responsibility for the identification of protected areas formally passed to NCWC by 1991 (see box for this and other wildlife-related legislation).

The NCWC was created by Royal Decree in 1986 to: "Develop and implement plans to preserve wildlife in its natural ecology and to propose the establishment of proper protected areas and reserves for wildlife in the Kingdom." (Article 3(4) of Royal Decree No. M/22). The term wildlife covers all indigenous wild plants and animals and their habitats under natural or semi-natural conditions on land and in the sea (Child and Grainger 1990). By necessity some of the NCWC's first major projects focused on the protection and restoration of high profile animal species such as the houbara bustard and the Arabian oryx. This species-centered approach served to raise conservation awareness within Saudi Arabia. By initiating projects for the captive-breeding and reintroduction of "flagship" quarry species with the potential for future sustainable use the NCWC has sought gradually to gain popular support for other, less spectacular but equally fundamental conservation programmes.

From the beginning the NCWC recognised that the conservation of representative portions of the Kingdom's major habitats would be essential for the protection of not only key species, but entire communities of plants and animals (Buttiker and Grainger 1989). The foundation of the NCWC approach has been the creation of a large network of protected areas and the management of these areas in such a way as to fulfil the NCWC mandate to preserve, conserve, but also to develop the nation's wildlife (Abuzinada et al. 1992).

The NCWC's System Plan for Protected Areas attempts to draws on the cultural precedents of the traditional hema system (Grainger and Llewellyn 1994), and compiles information from earlier surveys by other government agencies to list a total of 103 candidate protected areas, covering a total of over 170,000 km², or 8.1% of the Kingdom (Child and Grainger 1990). It was initially planned that up to 10 new sites
would be declared annually during the first decade of NCWCD operations. Lack of inter-
agency co-operation and failure to gain public support in the face of a preservationist
approach meant that by 1999 a total of only 13 protected areas, plus botanical
reserves/sanctuaries in three NCWCD field research centres had been formally decreed
(Figure 3.1; see also Appendix for details).
<table>
<thead>
<tr>
<th>Year</th>
<th>Legislation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1966</td>
<td>Land Development Act: gives the Ministry of Agriculture and Water Resources (MAW) responsibility over the regulation of land development activities. The act puts a limit on the maximum acreage of land that may be utilised by individuals for agriculture.</td>
</tr>
<tr>
<td>1975</td>
<td>Agricultural and Veterinary Regulations: regulations controlling the introduction of plant and animal species into Saudi Arabia.</td>
</tr>
<tr>
<td>1977</td>
<td>Forests and Pastures Act: committing the MAW to conserve pastures, public and urban forests, and to regulate their use. Accordingly cutting trees and shrubs for private or commercial use without a permit is prohibited and grazing is restricted to allocated sites.</td>
</tr>
<tr>
<td>1977</td>
<td>National Hunting law Decree Law No. 457: details areas with permanent hunting bans; administered by the Ministry of Interior on advice from NCWCD.</td>
</tr>
<tr>
<td>1978</td>
<td>Royal Forest Decree Law No. 1392 (incorporating National Park Law of 1977): lays down regulations for the protection of forests and wildlife; administered by the MAW.</td>
</tr>
<tr>
<td>1979</td>
<td>Water Resources Conservation Act: governing the control and use of water resources, with priority use granted to human and animal needs and to agricultural and industrial purposes; enforcement is the responsibility of MAW.</td>
</tr>
<tr>
<td>1995</td>
<td>Wildlife Protected Area Act: formalising the process for the creation and management of wildlife protected areas.</td>
</tr>
<tr>
<td>proposed</td>
<td>Draft Hema Law: intended to protect plant and animal species through the restoration and support of the traditional hema system, recognising: strict natural hema, plant hema, resource use hema and hunting hema.</td>
</tr>
<tr>
<td>proposed</td>
<td>GCC Agreement on Wildlife Protection: draft agreement proposed by NCWCD and which seeks to promote regional programmes for wildlife conservation, including provisions for protected areas and the regulation of wildlife trade.</td>
</tr>
</tbody>
</table>

**Recent trends in the management of protected areas in Saudi Arabia: A tale of four reserves.**

"Protected areas cannot be managed in isolation from their surroundings...especially in arid ecosystems in which both resources and resource users have strongly fugitive properties."

**Graham Child and John Grainger (1990)**

In the early stages of establishing its protected area network the NCWCD followed a policy of strict protection, excluding all tended livestock and restricting human access to enable the overgrazed landscapes to recover. It is possible to examine the NCWCD’s changing approach to protected area creation and management by comparing four sites: Al-Khunfah, Mahazat as-Sayd, ‘Urq Bani Ma’arid, and Umm ar-Rimth. This section has been developed from the ideas presented in Seddon et al. (1999).
Al Khunfah Protected Area
The over 20,000km² Al-Khunfa protected area was declared in 1988 to protect the then largest population of sand gazelle in Saudi Arabia, and to conserve a large tract of sandy gravel plain bordering the western edge of the Great Nafud (Child and Grainger 1990). Because of its vast size only 8,000km² of Al-Khunfa’s 20,000km² are patrolled by a force of rangers based in ground camps, and by light aircraft. Patrols are intended to enforce this core zone’s Special Natural Reserve status, the strictest level of protection assigned by the NCWCD. Under SNR status all hunting of wildlife and all grazing by domestic livestock is forbidden, no dwelling sites, whether permanent or temporary are permitted, and access to the area is by permit only. The area was designated and is managed with negligible involvement from the surrounding local communities, many of whom have effectively lost traditional grazing lands. As a consequence wild herds of gazelles are currently threatened by heavy poaching, facilitated by easy access to the area from major highways. The NCWCD’s response to incursion has been to construct a large dike and ditch barrier along the southern and part of the western boundaries to the core zone. A similar approach has been used for the same reasons in the 12,150 km² Harrat al-Harah protected area to the north of Al-Khunfa. Poaching still takes place and the Al-Khunfa gazelle population is believed to have declined.

Mahazat as-Sayd Protected Area
The Mahazat as-Sayd protected area was also declared in 1988, with a little over 2,200km² being placed under SNR designation (Seddon 1996). The area was intended from the beginning to be a reintroduction site for Arabian oryx, houbara bustard, and gazelles. It was felt at the time that the only sure way of enforcing the SNR status was to fence the area. Mahazat as-Sayd was surrounded by a barbed wire-topped mesh-link fence in 1989. The fence is patrolled daily by NCWCD rangers. Once again general public access is prohibited, and community involvement in reserve management is negligible, although in the last five years the ranger force has been made up of locals. There have been no instances of poaching and only a handful of illegal entries in the last ten years. The important difference between Al-Khunfah and Mahazat as-Sayd is that Mahazat as-Sayd is fenced and is thus able to maintain its strict protection status with minimal enforcement effort, and minimal benefit to traditional stakeholders.

‘Uruq Bani Ma’arid Protected Area
By the time the ‘Uruq Bani Ma’arid protected area was decreed in 1994 the fencing of huge protected areas was no longer an economically nor politically feasible long-term
management option so, in order to start to incorporate local community needs into the process of protected area management, the NCWCD adopted a new approach. The approximately 5,000km² area was divided into three zones: a 2,400km² core protected zone, a managed grazing zone, and a controlled hunting zone. This created in effect a multiple resource use site. The core zone has been designated a Natural Reserve (NR), which allows for greater public access than an SNR. Transit of livestock is permitted through the core zone so that seasonal access to central grazing zones is not hindered. In addition the NCWCD and its rangers have sought to consult with and involve local tribal groups in the management of the released oryx. A large proportion of the rangers employed in the reserve are from local communities, enabling the NCWCD to make full use of their excellent tracking skills and local knowledge. Consequently, without the need for fences, the area has gained good public support.

**Umm ar-Rimth**

The 6,000km² Umm ar-Rimth protected area was declared in 1996, but to date has no formal structures or mechanisms in place. The area was chosen as a new reintroduction site for houbara bustards, but in fact was not in the original protected area systems plan. Plans are underway to identify a suitable release site for houbara. This would amount to 10% of the total area and would be designated a SNR with restricted public access due to the vulnerability of any re-established houbara population. In recognition of the problems facing the preservationalist approach (Zaghloul et al. 1999) the remainder of the area however, would be a Resource Use Reserve, jointly managed by local communities and the NCWCD with the aim of developing livestock herding practices that would improve grazing efficiency and permit some recovery of natural vegetation. For the first time the NCWCD is seeking the advice, co-operation and approval of local tribal leaders before any formal management decisions are taken for the area. The aim is to understand and fulfil the needs of the traditional stakeholders in as environmentally friendly manner as possible (Al-Faisal 1999).

**Trends in Protected Area Management in Saudi Arabia**

Five trends in the NCWCD approach to protected area management may be discerned.

- Increased consultation with local communities.
- Increased use of the Resource Use Reserve zones.
- Increased employment of local people as rangers.
- Increased contact between rangers and local communities.
• Decreased application of strict Special Natural Reserve zones.

Conclusions
The NCWCD has taken the first, necessary steps to public and community involvement in protected areas. However, it is as yet unproven that any kind of regulated grazing management is feasible or compatible with ecosystem recovery; the restoration of the larger mammal species remains problematic in areas lacking natural geographic boundaries without improved public attitudes and support; there are still no effective mechanisms for regulated public access to protected sites, and as yet few tangible benefits accrue to communities surrounding the majority of the NCWCD protected areas. The development of protected area tourism would be in keeping with the directions being taken by the NCWCD, and could be compatible with local expectations as well as a valuable means of educating the general public and gaining their support.

4 The area is variously known as Umm ar-Rimth (Mother of *Halocyzon salicornium*), Saja, and Al-Hmar, depending on the exact area being referred to; I have simplified matters by using the name Umm ar-Rimth to refer to the entire area.
Chapter 4

Current state of the tourism industry in Saudi Arabia

Introduction

Whereas religious tourists have been visiting what is now Saudi Arabia for over 1000 years, leisure tourism within the Kingdom is a relatively recent phenomenon - arising from increased urbanisation; increased leisure time and expendable income, and improved transportation networks. However, to date due to strict regulation of entry and movement by non-Saudis, international leisure tourism is negligible and restricted largely to nationals from Gulf Co-operation Council (GCC) countries. Nationally, lack of development for tourism; the absence of information on internal tourist destinations and facilities, in combination with fiercely hot summers,(Ady and Waller 1989, 1992) have resulted in over 3 million Saudis choosing holiday destinations outside the Kingdom each year - 83% of Saudi vacation time is spent in other countries (ATI 1999). A conservative estimate suggests that SR500 billion (U$134 billion) is spent on holidays outside the Kingdom each year; overall, tourism amounts to much less than 1% of the national economy, compared to 8% in a country such as France (ATI 1999).

The need to support national business, and to limit this leakage of funds has focussed the attention of both the government and the private sector on the development of the Saudi tourism industry (Ady and Waller 1992; Ady 1996; CoC, Riyadh 1999; Adnan Al Saigh, Medina CoC, pers. comm.). Tourism, including nature-based tourism (Abuzinada 1999), is set to expand. So far this expansion has been development driven, led by the business sector, and with little evident consideration or mitigation of potential or actual environmental impacts (Seddon and Khoja 1999).

In this chapter I review the state of the Saudi tourism industry, considering what types of tourism take place and, using the Asir Province as an example, where and when, and what sorts of facilities are available to tourists. Staying with Asir, I examine the evidence of environmental impacts of on-going tourism development. I then review the current administrative structures to assess whether these appear adequate to regulate the industry. I briefly look at the actual and potential role of international tourism, including expatriate residents and Muslim pilgrims, and consider possible future changes. I assess
the attitudes and awareness of a sample of tourism operators to wildlife, protected areas, and the NCWCD. I conclude by summarising possible future changes in the regulation and administration of the industry, the inter-government agency linkages, and the potential role of the NCWCD.

**Methods**

One of the main problems facing the Saudi tourist industry according to the business sector is the lack of a single co-ordinating agency for tourism (NTF 1999; Y. Shafi, pers. comm.). Its absence was one of the problems facing my review of the state of the industry, as the available information is scattered and incomplete. The data that does exist is largely in the form of unpublished internal reports, in Arabic. I therefore sought information from three sources: (1) interviews with regional Chambers of Commerce and Industry (CoC) representatives (Medina; Eastern Province; and Taif), and hotel managers (Abha, Jeddah, Sakaka); (2) presentations given at workshops held in conjunction with the 4th National Tourism Fair, hosted by the Emirate of Tabuk in May 1999; and supplemented by (3) circulation of a questionnaire to tourism operators in the Kingdom (see Appendix xx).

The questionnaire was formulated following preliminary discussions with tourism operators exhibiting at the 4th National Tourism Fair. The form was modified in response to suggestions from colleagues at the NCWCD in Riyadh. The questionnaire was distributed to a total of 14 major hotels; four travel and tour companies; two transport companies, and three government ministry offices. Returns were disappointing; firstly because there are relatively few businesses concerned primarily with internal nature-based tourism, and secondly due to the low rate of response from those operators I was able to contact. Only 13 completed questionnaires were received; the responses supplemented the more detailed information obtained from interviews and other sources and have been incorporated in the following discussion, with an overview of answers available in Appendix xxx.

**Domestic Tourism in Saudi Arabia**

There are three categories of tourist in Saudi Arabia: Saudi nationals; Muslim non-Saudis; and non-Muslims. The latter two groups comprise mainly pilgrims and expatriate
residents, and will be considered separately under the heading of international tourism (Box 4.1).

Statistics compiled by the Chamber of Commerce in Riyadh (1999) indicate that most domestic tourism is by families and youths, with peak periods being spring and summer - when the main school holidays take place, and statutory holidays such as Eid al Fitr following Ramadan. Tourist destinations within the Kingdom fall into three groups: (1) natural sites, often characterised by high rainfall and low ambient temperatures, e.g. Asir, Hail, Taif and Tabuk; (2) coastal sites, e.g. Jeddah and Jizan; and (3) holy sites, i.e. Makkah and Medina (a small proportion of pilgrims to the holy cities will be Saudi nationals; for convenience I will consider all pilgrims in the section on international tourism).

Following the infrastructure developments of the 1980s, the Kingdom is well-placed to develop domestic tourism (Ady and Waller 1989, 1992; Bin Sultan 1999): for example there are 25 airports with a frequent and reliable domestic air service; a sealed, maintained network of modern roads linking all major and most minor settlements; national and private bus companies; 380 major hotels, 290 hospitals (CoC, Riyadh 1999), and 10 telephones per 100 people (Ministry of PTT 1999). However, a lack of family oriented accommodation and entertainment has been cited as a reason why many Saudis choose to holiday outside the Kingdom, in the Gulf States, Jordan, Syria and Egypt Ady and Waller 1992; NTF 1999).

Tourism development has largely been a regional rather than national initiative; developing according to the interest and ability of provincial government (Emara). By far the most active of the Provinces has been Asir, under the leadership of its Governor HRH Prince Khaled bin Faisal. I consider the Asir below as an example of the potential for Saudi tourism to provide development opportunities, but also environmental impacts.

**Case Study: The Asir Experience** (source: NTC, Abha 1999)

Asir Province encompasses the hill cities of Abha, the provincial capital, Khamis Mushayt and Bisha, and contains the Asir National Park - a large recreation zone administered by the Ministry of Agriculture and Water's Department of National Parks. The province enjoys the highest rainfall in the Kingdom and the lowest summer temperatures. This, together with the spectacular scenery and lush vegetation, has made
the Asir the number one summer holiday destination. In 1998 the area received 1.3 million tourist visitors - 90% of them Saudis, and most from the large urban centers of Riyadh and Jeddah. The majority of visitors were families (40% were children) from lower and middle income groups. Tourists stayed on average between 1 and 3 weeks, and spent between SR200-500 (U$50-135) daily per person. It has been estimated that 50% of domestic tourists visit Abha.

The Asir province has done more than any other to nurture domestic tourism. There are up to 77 domestic flights into Abha weekly, along with 280 bus arrivals; the city has 23 hotels, 112 apartment buildings and nine tourist villages; and a recently established Collage of Tourism aims to train young Saudis for the hospitality industry. Abha has become an example of the potential earnings to be made from tourism, and cities such as Hail, Jeddah, Tabuk, Yanbu, Jizan and Jubail are poised to develop and expand tourist facilities and attractions.

Domestic tourism in Saudi Arabia is booming; in 1999 the Asir region generated SR2 billion in revenue from domestic tourism - much of it with some nature component, and available figures, now out of date, indicate that over SR4.5 billion was invested in tourism related development in 1993 (ARAC 1994). Tourism operators questioned were in general agreement that domestic tourism was growing, and that the interest in nature-based tourism was high. Not surprisingly therefore, tourist numbers and activities are starting to show signs of exceeding the capacity of some sites, resulting in the degradation of the resources on which the industry depends (Abuzinada 1999). Just as important as the benefits arising from the expansion of tourism in Asir, have been the largely unregulated and ignored environmental impacts. For example, the management of the Asir National Park, within which the Asir's tourism development has taken place, emphasises development for human recreation, but lacks adequate protection for wildlife and habitats (Thouless 1991). A recent study by Boug (1999) cited tourist resort, holiday home and public garden developments as some of the main causes of environmental damage; for example resort and villa construction near Al Baha south to maximise views, but resulted in the almost complete loss of natural juniper forest cover, while closer to Abha a public garden was created by removing wild juniper trees and planting exotic Eucalyptus. The report also cited failure to use traditional building designs, which are more energy efficient and aesthetically pleasing than the box-like structures being erected. The upshot of the report has been the creation of a committee comprising representatives from NCWCD, King Khaled University (Abha), MEPA, MAW and the
Emara to study impacts and propose solutions. A submission was made to this process, calling attention to eco-tourism principles (Seddon, unpublished data).

Of the 12 tourism operators questioned, all agreed that operators had a responsibility to protect the environment, but none had specific environmental protection policies, and only six could cite examples of any actions they took to limit impacts (Appendix xxx). The need for more environmental protection and environmental public awareness is becoming more widely appreciated by some agencies, and procedures such as Environmental Impact Assessment are to be put in place (Mohammed Haroon, CoC Eastern Province, pers. comm.).

**Administration and Regulation of Saudi Tourism**

Tourism currently falls within the remit of a number of government agencies, including MAW (national parks); Ministry of Education (archaeological sites); Ministry of Municipal Affairs; Ministry of Pilgrimage; Ministry of Interior, and regional Emara (Abuzinada 1999; ATI 1999) The principal government agency concerned is the Ministry of Commerce - an indication of the business oriented approach to the industry - working in conjunction with the Emara. The Ministry of Commerce is responsible for issuing licenses for commercial development which, with regard to tourism, fall under three sub-departments (Bahais 1999): (1) hotels and motels; (2) apartment buildings (in 1998 the ministry received 170 applications for the development of furnished apartments); (3) tourist villages, theme parks, marriage and exhibition halls, and food outlets.

Most directly concerned with tourism development are the Chambers of Commerce and Industry (Y. Shafi, Taif CoC, pers. comm.). These are present in each of the 19 provincial centres, and are self-funded but work under the authority of the Ministry of Commerce which supervises the election of board members and received and review annuals reports. The CoCs’ membership is drawn from the local business community; their aim is to encourage and facilitate regional investment and development. Provincial CoCs are overseen by the Riyadh-based Council of Saudi Chambers of Commerce and Industry. In 1999, in recognition of the growing importance of domestic tourism, a Regional Tourism Committees were created within the CoC, specifically to focus attention on tourism development. The regional committees are co-ordinated by a National Tourism Committee, which has been instrumental in urging creation of a
government tourism body to co-ordinate and promote domestic tourism (see next section).

With the expertise being drawn from the business community, and the objectives relating to development, the current capacity to assess and regulate environmental impacts is limited or non-existent. The present administration of domestic leisure tourism in Saudi Arabia dangerously undervalues environmental conservation, and this may ultimately be at the expense of the industry as natural attractions are degraded.

The future of domestic tourism in Saudi Arabia and the potential role of the NCWCD

Delegates to the 4th National Tourism Fair in 1999, as well as respondents to my questionnaire for tourist operators, were in agreement; there is a need for a single government agency to co-ordinate, promote, develop and facilitate national tourism - a Department of Tourism, perhaps within the Ministry of Commerce, or a National Tourism Commission. A formal case was put to HRH Prince Sultan bin Abdulaziz by the National Tourism Committee of the Council of Saudi CoC at a specially convened conference in Abha in 1996 (Y. Shafi, pers. comm.). In late 1999 a government committee was formed to study the feasibility of creating a National Commission on Tourism; the recommendations from this committee are being awaited. Such a body should undertake to (Ady and Waller 1992; Bahais 1999; Makkah Emirate 1999; Ministry of Finance 1999; Ministry of Planning 1999):

- develop a national tourism strategy, in conjunction with the ministries of Planning and Finance;
- assist regional and site planning, together with regional and local government;
- encourage and oversee the development of sites, infrastructure and capacity for the industry, together with the ministries of Planning, Municipal Affairs, Education, Communication and PTT (Post, Telegraph and Telephone);
- develop the National Park system, together with MAW;
- promote tourism amongst the public, including the production of maps and brochures, and the development of public awareness programmes;
• facilitate tourism industry development, together with the Ministry of Finance, to ease licensing and loan regulations, and possibly through the creation of a tourism development bank;
• explore ways to increase the role of international tourism, together with the Ministry of Interior;
• compile and publish statistics and monitor trends in the industry;
• minimise the environmental impacts of tourism development, through legislation and enforcement of regulations on resource use, environmental impact assessment, and study of impacts and their mitigation or prevention; together with the NCWCD (wildlife and habitats) and MEPA (air and water quality and pollution monitoring), perhaps through the co-ordination of the newly created Environmental Minister Council - a government body created in 1997, with representation from 13 ministries and the brief to develop a strategy for environmental protection.

It is with this last point that the input of the NCWCD become apparent (see also Abuzinada 1999).

♦ The NCWCD should seek to be involved in any new tourism co-ordinating body, e.g. a National Tourism Commission.

♦ The NCWCD should have input into the formulation of national tourism development policy, particularly at the project review level, e.g. environmental impact reporting, and the establishment of eco-friendly guidelines for development.

♦ The NCWCD should ensure that it retains total control over any and all eco-tourism development in and around wildlife protected areas, and should set up and co-ordinate the collection of statistics on wider environmental use and impacts.

♦ The NCWCD should formulate and implement its own eco-tourism strategy for protected areas and other natural sites that do or will fall under NCWCD responsibility. The success a few carefully selected pilot studies will provide a model for linkages between the government and private sector, to integrate the tourism industry and conservation through the development of eco-tourism ventures outside protected areas, particularly community-led projects in sites of biological importance.

There is a very real danger that the NCWCD will be left out of what could be the most important developmental phase for Saudi Arabia since the infrastructure expansion of the 1970s and 80s.
The next chapter looks in more detail at patterns of leisure tourism, and public attitudes to wildlife, protected areas and the NCWCD.
Box 4.1 International Tourism in Saudi Arabia

Pilgrims and Religious Tourism

It is often the impression of many Westerners that, because the Kingdom does not issue tourist visas, Saudi Arabia has no international tourism. In the wider sense of the term tourist however, international tourism is of major importance to Saudi Arabia - religious tourism. Saudi Arabia is responsible for the two holiest sites in Islam, Makkah (an alternative transliteration is Mecca) and Medina, sites which attract some 5 million pilgrims annually for Hajj and Umrah.

In the last 20 years pilgrim numbers in Hajj have doubled and now 2 million pilgrims gather at the mosque. The people of Makkah make their livelihood from this religious tourism, and the Hajj is the mainstay of the local economy. As pilgrim numbers increased, authorities have had to draw up regulations setting out minimum standards of accommodation, and established Hajj Companies to oversee these. A company was set up for each country or region from which pilgrims originated, e.g. South-east Asia, the Arab World, sub-Saharan Africa, Iran …etc. Now the muttawaf (official guides) operate under these companies to provide standardised services.

In an effort to limit the growth of pilgrim numbers the Saudi government now allows non-Saudi Muslim expatriates to perform Hajj only once every five years. There are currently no restrictions on Saudi nationals. In addition, the government has recommended to Muslim countries that they restrict pilgrim numbers each Hajj to 1,000 pilgrims per 1 million of Muslim population in that country.

Pilgrim visas largely restrict travel to the two holy cities and ports of entry. It has been suggested that one way to increase revenue from pilgrims would be to free up travel restrictions and visa time limits, and encourage visits to other, appropriately developed sites of cultural, historical and natural interest (NTF 1999). In addition, with some 15 5-star hotels and numerous other types of accommodation in the vicinity of the grand mosque in Makkah, there has been a move to allow visits for Umrah at any time of the year, thus reducing the seasonality of religious tourism and making better use of the massive infrastructure available.

Expatriate Residents

The Kingdom employ some 7 million expatriate workers, mainly from the Indian sub-Continent and south-east Asia, but also North Africa, Europe, the Americas and Australasia. Present regulations restrict free travel by expatriates more than 50km from the place of employment without specific Saudi sponsor approval. New labour laws are currently under discussion which may free up such restrictions. These would be in keeping with calls from the business community for the government to encourage expatriates to holiday, and to spend a portion of their income, within the Kingdom (NTF 1999). Currently the majority of visitors to historical sites are resident expatriates, and some hotel and travel companies have established tour programmes specifically targeting this market (M. Al Tahtoumi, Al Nusl Hotel Sakaka).

International Cultural Tourism

Since mid-1998 the national airline, Saudi Arabian Airlines, has, with government permission, sponsored package tours for between 20 and 30 groups of foreigners in the Kingdom. The focus has been on encouraging “educational groups”, mainly Westerners drawn from universities, museums and alumni groups with an interest in visiting archaeological and cultural sites (Powell 1999). There are moves also to allow other tour companies to act as sponsors for outside visitors. This is a cautious experiment aiming to see if carefully regulated international tourism would be possible, without any associated detrimental cultural impacts.
Chapter 5.

Public attitudes to wildlife, protected areas, and outdoor recreation, and patterns of domestic tourism.

Introduction

It would be a mistake to attempt to prepare wildlife protected areas for public visits without gaining some understanding of public attitudes to wildlife and outdoor recreation. While it would be inadvisable to allow the whims of the public to dictate under what circumstances they would visit or utilise protected areas, any tourism development must take into account what the viewing public wants or needs if it is to be commercially viable and therefore sustainable in the long-term. I have observed first-hand the tendency for expatriate consultants to fulfil short-term contracts with the application of regionally or culturally inappropriate management formulae. Despite having spent over eight years living and working in Saudi Arabia I am aware that I carry a lot of Western cultural baggage, and would be uncomfortable with the idea of suggesting a priori how a given site should be developed for domestic tourism. Some of the activities that are major attractions in the West, e.g. bird-watching tours, may find little support in Saudi Arabia…at present; it is equally important not to assume that interests and activities could not gain support if the opportunities and access were provided.

I identified two target groups from which information about attitudes and activities relating to leisure and wildlife should be obtained: students, and the male heads of middle and upper-middle income households. By assessing the attitudes of students, from primary school age up to university level, I hoped to obtain a glimpse of the future. These people will be Saudi Arabia’s decision-makers and the protected area users in the coming decades. Eco-tourism within protected areas must attempt to educate the visiting public, and in order to formulate appropriate public awareness and education programmes it’s necessary to try to understand what people do, why do they do it, and what they know or do not know about the animals or areas they would come to see.

The second target group forms that sector of Saudi society which currently makes decisions about where and how families take holidays within the Kingdom. This is not to say that women do not have considerable decision-making authority within Saudi households; their exclusion from this questionnaire is more reflection of greater ease of access to the male members of society. Lower income groups, such as nomadic or semi-nomadic herdsmen, are becoming a smaller segment of society and could be expected
not to take traditional vacations. Upper income groups, again a minority segment, are less constrained by financial circumstances in their choice of holiday destination.

The aims of this part of the study were twofold.

1. To investigate how young Saudis spend their leisure time, the prevalence of hunting, preferred activities if access to protected areas was possible, and attitudes to wildlife. Information gathered from the student questionnaire should be used to develop appropriate activities and wildlife education/interpretation programmes in conjunction with protected area visitor development.

2. To gain a better understanding of how Saudi families spend their vacation time, including where they go, how they get there, where they stay and what they do, and also to assess awareness of the NCWCD, and determine what sorts of activities and facilities should be available for visitors to protected areas. Information gathered from the tourist questionnaires can be used as an indication of which sorts of facilities should be developed for visitors within protected areas.

Methods

Information was compiled through the distribution and analysis of questionnaires; one targeting students, the other male family heads.

Student Questionnaires

The National Wildlife Research Center (NWRC) operates an active schools programme wherein groups of students and their teachers will visit the NWRC for a period of 2-3 hours to be given lectures, shown documentary films and be given a tour of the animal collections. I decided that these visits provided an opportunity to assess student attitudes. In order to focus the questions I began with a question and answer session on preferred leisure-time activities and general attitudes to wildlife during a visit by 24 students from the Taif Intermediate school on 5th April 1999. This allowed me to include, drop or modify a list of potential questions.

Based on responses, I formulated a trial questionnaire. This was translated into Arabic by my Saudi colleagues, and circulated among 29 students from Jeddah Teachers’ College on 26 April 1999. The replies indicated that the questions appeared to be generally appropriate, but the layout of the form needed improvement. At this stage I
sent copies of the questionnaire for review by colleagues at the NCWCD in Riyadh, and staff at the ICPL, Aberystwyth. Comments were compiled and a final form readied for use by early May 1999.

The English version and the Arabic translation of the student questionnaire is given in Appendix xx.

Tourist Questionnaires
These proved to be more problematical than the student questionnaires as it was not feasible regularly to assemble a captive sub-sample of male household heads at NWRC. I initially followed the same procedure as for the student questionnaire formulation: following discussions with Saudi colleagues and friends I compiled a draft questionnaire and sent this out for review to NCWCD in Riyadh and ICPL, Wales. The revised version was translated into Arabic by a Saudi colleague, and the translation cross-checked with other native Arabic speakers.

The first approach for questionnaire circulation was to leave copies with groups, such as the Chamber of Commerce, the Coast Guard, and the King Saud University in Riyadh, that I had made contact with for other aspects of the study. Poor returns from this approach (2/50; 4%) led me to employ the help of staff within the NCWCD and its regional centers. I requested that each staff member undertake to canvas friends, neighbours and other contacts, and aim to obtain between five and 10 completed questionnaires. I suggested that, to improve return rates, the brief questionnaire be given, completed and collected in a single session.

The English version and the Arabic translation of the tourist questionnaire is given in Appendix xx.

Results and Discussion

Student Questionnaires

“One of the principal reasons why protected areas are insufficiently valued by society is the lack of adequate education about their benefits and their importance in sustaining the world’s ecosystems and societies.”

Valerie Barzetti (1998)

Between 10 May and 7 December 1999 the student questionnaire was handed out during 14 school’s visits, yielding a total of 360 valid returns, drawn exclusively from schools in the Mecca and Medina Emirates. It is not known whether a regional bias in student
responses may exist; it is assumed here that it does not. An analysis of cumulative responses to three questions (see box) indicated that a minimum of 250-300 returns comprised a suitable sample size.

Age of respondents ranged between 7 to 52 years, the sample also included responses from three teachers, aged 40, 49 and 52. The modal age for all respondents was 15; the mean 15.5 years (Figure xx).

Box 1.1 Sample Size for Student Questionnaires

In order to assess whether I had obtained an adequate sample of students I selected three questions and graphed the responses to these as percentages calculated from cumulative 20 block intervals. The three questions related to the prevalence of hunting, the selection of guided tours as an activity in protected areas, and the prevalence of walking for leisure. To avoid any possible systematic bias that may have arisen following any non-random sequence of school visits, e.g. several primary schools in a row, or a group of schools from one locality, I first placed all schools in ascending alphabetical order. The graph below shows that asymptotes were reached for all three answers once a minimum of around 250 questionnaires had been compiled; therefore between 250 to 340 questionnaires there was little variation in the overall responses. From 250 responses onwards, both the percentage of students that hunt and the percentage that showed a preference for guided tours in protected areas levelled out at between 50 and 60%, while the proportion that walk for leisure remained around 40%. I conclude that 360 completed questionnaires constitutes an adequate sample size.

Question 1. How do people spend their leisure time?

The most common principal leisure activities were visiting friends and family (selected by 55%) and playing sport (47%); the least common were hunting (20%, but see later), camping (23%) and watching television (26%). This indicated a preference for socialising, along with a healthy interest in physical activity. Picnicking and walks to see plants and
animals was chosen by 41% and 39%, respectively, suggesting that the translation of these activities to a protected area setting would be appropriate and readily accepted.

**Question 2. Prevalence of hunting.**

Overall, 56% of respondents indicated that they went hunting. This is greater than the 20% that chose hunting as one of their main leisure activities, suggesting that although a common pursuit, hunting is not the principal pastime. Some more disturbing trends emerged. Guns (the questionnaire did not distinguish between types of firearm) were overwhelmingly the hunting methods of choice (70%), whereas more traditional methods, such as the use of falcons (Remple and Gross 1993), comprised less than 5% (Figure 5.1).

**Figure 5.1**

In total 58% of hunters primarily targeted birds, without discriminating between species; 12% hunted gazelles, which are officially a protected species, while 2% went after anything (Figure 5.2).
**Hunting Targets**

N = 67 replies

- Birds: 58.0%
- Reptiles: 6.0%
- Gazelle: 12.0%
- Hares: 16.0%
- Other mammals: 6.0%
- Anything: 2.0%

**Prevalence of hunting by age**

- Pre-teen 7 - 12 years old: 83
- Early Teen 13-15 years old: 158
- Late Teen 16-20 years old: 77
- Adult older than 20 years: 39

**NWRC Schools Questionnaire**

Figure 5.2

Figure 5.3
There was little variation in the prevalence of hunting with age (Figure 5.3), with only a slight decline evident in the over-20 age group. Possibly patterns established as a pre-teen are able to be maintained into the late teens, but may decline thereafter as commitments to work and family increase.

One hundred and ninety four students (excluding teachers) indicated their father’s occupation. I divided occupations into six broad categories, in approximate order of increasing formal education and professional qualification. I predicted that prevalence of hunting among students would decline with increasing education of the father. This was not clearly so (Figure 5.4). Only one category was well below the mean, as expected this was category F (23 %) comprising professions such as doctor, chemist and engineer. However, two categories stood out above the mean, C - self-employed (in 66% of this group the offspring hunted), and, most unexpected, E - teachers, in which prevalence of hunting reached 68%. This mirrors a more general finding by Sabayee (1992), based on a survey of 380 adult males in the Riyadh region, that people educated outside Saudi Arabia had greater awareness of the need for environmental conservation. Sabayee concluded that increased emphasis needed to be placed on environmental education within the Saudi school curriculum. With a high proportion of teachers’ children being hunters, clearly here is both a target and an avenue for improved hunter education.

**Father’s Occupation**

- A - Shepherd, Farmer
- B - Military, Police, National Guard, Constable, Traffic Department
- C - Businessman (self-employed), Unemployed, Retired
- D - Trademan, Technicia, Mechanic, Labourer, Shopkeeper, Builder, Driver, Plumber, Electrician, Civil Servant
- E - Principal, Lecturer, Teacher
- F - Doctor, Banker, Manager, Architect, Chemist, Engineer, Radiologist, Pharmacist

**Overall average = 56%**

Figure 5.4
Question 3. Preferred activities within protected areas.
An interest in seeing animals was evident with nearly 80% of students selecting this option as one of their top three (Figure 5.5). Guided tours were also selected by nearly 60% of students, whereas overnight stays was least preferred. In keeping with the preference for physical activity expressed in Q1, of the 318 students that selected viewing animals, over 40% of them indicated a preference to view animals while walking (Figure 5.5).

Error! No topic specified.

Figure 5.5

Question 4. Attitudes to wildlife.
This question had two parts. The first was designed to assess interest in seeing specific animals in order to better gauge potential interest in visiting protected areas containing certain species. The second part attempted to identify biased attitudes or misconceptions surrounding some native species.

There was a large variety of responses to the favourite animal question, with 29 different answers. Of the 268 valid responses, gazelles came out as the overall favourite, followed by leopard, oryx, and falcons (Figure xx). Over 85% of students chose native species as those they would prefer to see, the majority (64%) of which would be readily visible in the wild (Figure xx), e.g. gazelle, oryx, baboon, fox, native birds, and some of the reptiles.
Attitudes to selected species indicated three things (Table xx):

- carnivores, even the diminutive desert foxes, are generally considered dangerous;
- gazelle, oryx and houbara, all high-profile quarry species for traditional hunting, were considered beautiful by most students, possible a reflection of the appearance of these three species in traditional poetry;
- quarry species, particularly jerboa and hare, received relatively high ratings as being tasty.

Table: Student attitudes to selected native species in Saudi Arabia; attitude categories are listed left to right in order of decreasing perceived threat,
from ‘dangerous’ to ‘tasty’; bolded figures are highest ranking categories for each species.

<table>
<thead>
<tr>
<th>Animal</th>
<th>Dangerous</th>
<th>Strong</th>
<th>Beautiful</th>
<th>Amusing</th>
<th>Tasty</th>
<th>No opinion</th>
<th>Valid responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baboon</td>
<td>25.6</td>
<td>12.5</td>
<td>10.5</td>
<td>40.3</td>
<td>0.9</td>
<td>10.2</td>
<td>313</td>
</tr>
<tr>
<td>Fox</td>
<td>48.9</td>
<td>11.2</td>
<td>10.9</td>
<td>24.9</td>
<td>0.3</td>
<td>3.8</td>
<td>313</td>
</tr>
<tr>
<td>Gazelle</td>
<td>3.1</td>
<td>3.3</td>
<td>68.1</td>
<td>6.7</td>
<td>17.0</td>
<td>1.6</td>
<td>329</td>
</tr>
<tr>
<td>Hare</td>
<td>1.9</td>
<td>2.5</td>
<td>43.9</td>
<td>8.5</td>
<td>41.4</td>
<td>1.8</td>
<td>319</td>
</tr>
<tr>
<td>Houbara</td>
<td>3.3</td>
<td>1.6</td>
<td>51.3</td>
<td>16.0</td>
<td>21.9</td>
<td>5.9</td>
<td>306</td>
</tr>
<tr>
<td>Hyena</td>
<td>40.5</td>
<td>21.9</td>
<td>7.2</td>
<td>14.1</td>
<td>2.6</td>
<td>13.7</td>
<td>306</td>
</tr>
<tr>
<td>Jerboa</td>
<td>2.9</td>
<td>1.3</td>
<td>26.0</td>
<td>27.3</td>
<td>20.1</td>
<td>22.4</td>
<td>304</td>
</tr>
<tr>
<td>Leopard</td>
<td>56.4</td>
<td>32.1</td>
<td>4.0</td>
<td>5.6</td>
<td>0.0</td>
<td>1.9</td>
<td>321</td>
</tr>
<tr>
<td>Oryx</td>
<td>4.3</td>
<td>5.6</td>
<td>57.8</td>
<td>17.4</td>
<td>10.6</td>
<td>4.3</td>
<td>322</td>
</tr>
<tr>
<td>Snake</td>
<td>82.7</td>
<td>5.7</td>
<td>3.1</td>
<td>6.9</td>
<td>1.3</td>
<td>0.9</td>
<td>318</td>
</tr>
<tr>
<td>Wolf</td>
<td>73.3</td>
<td>18.4</td>
<td>4.3</td>
<td>3.1</td>
<td>0.3</td>
<td>0.6</td>
<td>326</td>
</tr>
</tbody>
</table>

Summary

Saudi students prefer to spend their leisure time socialising and in physical pursuits, and show an interest in outdoor recreation and wildlife. However, for over half the students, much of their direct contact with native wildlife is likely to be through hunting - which may explain the biased attitudes to key species. Development of public access to wildlife protected areas could be an important way to increase favourable exposure of students to native animals and their habitats, and would provide opportunities for improved environmental education programmes in schools to incorporate a practical component.

On the basis of these findings, tourism development of protected areas in Saudi Arabia should:

- ensure that wild animals can be readily viewed in any given site; native ungulates in particular would be an important attraction;
- take care that such viewing is accompanied by professional interpretation delivered by trained guides;
- provide facility for such viewing to be conducted on foot or by suitable vehicle, as circumstances dictate, but where possible the option of marked trails or guided walks should be made available;
• not necessarily entail overnight stays, since day visits would both satisfy visitor needs, as well as reduce the infrastructure required within a particular protected area;

• incorporate a strong environmental awareness and education component, particularly focusing on the role of native animal species in the environment in order to counter attitudes that all carnivores pose a danger to humans, whereas traditional quarry species may best be regarded as “tasty”.
Tourist Questionnaires

Between April 1999 and December 1999 a total of 202 completed tourist questionnaires were compiled, drawn from the Mecca, Medina, Al Jouf, Qassim, Hail, Riyadh, and Eastern Province Emirates (see map). An analysis of the cumulative responses to three questions (see box 1.2) indicated that 202 returns comprised a suitable sample size.

Box 1.2 Sample Size for Tourist Questionnaires

In order to assess whether I had obtained an adequate sample of tourists I selected three questions and graphed the responses to these as percentages calculated from cumulative 20 block intervals. The three questions related to whether holidays were taken inside or outside Saudi Arabia; whether respondents knew of the NCWCD, and whether they wished to have restaurant facilities associated with any future protected area tourism development. The graph below shows that asymptotes were reached for all three answers once between 90 to 120 questionnaires had been compiled, and thereafter there was little variation in the overall responses. The percentage of tourists that holiday within Saudi Arabia varied only between 67-65% once 100 responses had been compiled; and the percentage that had heard of the NCWCD remained constant at around 88-90% after only 90 responses, while the percentage that showed a preference for restaurants in protected areas levelled out at between 49-47% after 120 responses. I conclude that 202 completed questionnaires constitutes an adequate sample size.

Of the 202 respondents, 191 (99%) were Saudi nationals, the remaining 1% Yemeni or unidentified; 120 (59%) were married, 79 (39% single), and 3 unknown. For the 120 married men, the mean number of children per family was 3, the range 0 - 12, and the
median 4. A total of 189 people answered the income question: 80 and 79 (~42%) fell into the <5,000 and 5,000-10,000 SR/month (divide by 3.75 for US$) categories, respectively; 14% earned between 10,000 and 20,000, and only 2% earned more than 20,000 SR/month. Single men were more commonly in the lower income brackets (Figure Tourist income).

Error! No topic specified.

Question 1. Number of days of vacation taken each year.
Excluding one respondent who took no vacations, and 21 who declined to answer, 180 respondents took between 1 week and 130 days of annual vacation; a mean of 52.8 days (mode 30 days; median 30-40 days).

Question 2. Number of days of vacation taken away from home.
In total 169 men answered question two, indicating that between 0 and 90 days vacation were spent away from the home, with a mean of 23 days (mode 30; median 21). There was little difference in the mean time spent away between international (24.0 days) and domestic (23.7 days) holiday makers.

Question 3. Which months are vacations taken in.
While holidays could be taken in any month of the year, few were taken in spring or autumn, and most were taken in summer; a reflection of national school and government holidays which coincide with the hottest period in the year (Figure Tourist months).

Question 4. Preference for domestic or international destinations.
There was only a slight preference for domestic (59%) over international destinations (41%) indicated by the 201 valid responses. Remember that these are choices by almost entirely Saudi nationals - expatriate residents may be expected to vacation at home.

**Question 5. Reasons for selecting international destinations.**
All 82 respondents who had indicated in question 4 that they chose international destinations, provided reasons for this choice. These were grouped into four categories: ‘shopping’; ‘climate’ (cooler); ‘prices’ (lower); and the catch-all ‘facilities and attractions’. This last included expressed desires to see new cities and to experience other cultures, as well as to seek greater variety or better quality entertainment, accommodation or services. Over 60% of those holidaying outside Saudi Arabia did so for the facilities and attractions (Figure Tourist why out).

**Error! No topic specified.**

**Question 6. Preferred domestic holiday destinations.**
One hundred and six of the 119 respondents who holiday within Saudi Arabia indicated their preferred domestic destinations. I grouped these into six categories: ‘mountains’, including the hill towns such as Taif, Al Baha and Abha, as well as destinations expressed as Asir, or south-west; ‘coastal’, on either the Red Sea or Gulf; the ‘Holy cities’ of Makkah and Medina; ‘desert’; ‘other’, e.g. Riyadh, Hijaz, Al Jouf; and ‘no preference’, i.e. any city. In keeping with the peak holiday period in summer, the most popular domestic holiday destinations were in the mountains; coastal sites and holy cities ranked second and third, respectively (Figure Tourist where in).

**Error! No topic specified.**

**Question 7. Means of travel to holiday destinations.**
Overall, 55% of respondents travelled by private car; 44% flew, and the remainder went by bus. However, there was a difference in means of transport with destination (Figure Tourist travel to); 82% of domestic holiday-makers travelled by private car, whereas 82% of international travellers used commercial flights. It should be remembered that an international destination from Saudi Arabia could be elsewhere in the Middle East, such as Jordan, or the United Arab Emirates, reflected by the 16% of international travellers that travelled by private car.

**Error! No topic specified.**

**Question 8. Means of travel during vacations.**
Overall, 62% of people used private cars, 27% rented a vehicle, and 11% used taxis. But again there was a difference between domestic and international holiday-makers (Figure Tourist travel in), with 87% of domestic vacationers using a private car, 9% using rentals and 4% using taxis. In contrast, travel at international locations was primarily by rental car (52%), and secondarily by private car (25%) or taxi (23%). Some discrepancy may be noted whereby people appear to travel to a destination by plane, but then use a private car. This is not uncommon and arises from the practise of sending a loaded family car to the holiday destination by car-transport, and thereby avoiding long, boring, and potentially hazardous road journeys. There are a number of commercial firms which specialise in the transport of private vehicles.

Error! No topic specified.


Of the 152 replies to this question, some were clearly rough estimates, a few of which seemed to be marked under-estimates given the size of the family and the preferred accommodation or destination. When a range was given I used the upper limit. Overall, on average SR2690 was spent per week during vacations (SR384 per day), with a range of 40 (camping in a tent in the desert) to 15,000. As expected there was a difference between domestic (mean SR 2086) and international (mean SR3543) holiday expenditure (Table). These figures are in close agreement with those obtained in a 1993 survey (ARAC 1994), which suggested equivalent weekly expenditures of SR 1750-2100 and of SR3850, for internal and external tourists respectively. The ARAC (1994) study showed that Saudis tend to spend 50% more than other tourists within destinations outside Saudi Arabia.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Domestic</th>
<th>International</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>2086</td>
<td>3543</td>
<td>2690</td>
</tr>
<tr>
<td>Range</td>
<td>40-10,000</td>
<td>700-15,000</td>
<td>40-15,000</td>
</tr>
<tr>
<td>Median</td>
<td>2000</td>
<td>3000</td>
<td>2000</td>
</tr>
<tr>
<td>Sample size</td>
<td>89</td>
<td>63</td>
<td>152</td>
</tr>
</tbody>
</table>

A crude estimate can be calculated of the annual leakage of revenue due to Saudi nationals taking holidays outside the Kingdom. On average Saudis spend SR 506/day during overseas holidays. It has been estimated that some 3 million Saudis take vacations overseas each year (ARAC 1993); therefore SR1.5 billion is being spent per vacation day. If, on average, 24 days are spent on holiday away from home by international holiday
makers (Question 2, above), then each year around SR36 billion (~US$9.6 billion) are being spent by Saudis while on holiday outside the Kingdom.

**Question 10. Preferred type of accommodation.**

Of the 198 respondents to this question, the majority (62%) indicated a preference for self-contained apartment or villa style accommodation; 23% opted for 4-5 star hotels, the remainder used either tents (10%) or 2-3 star hotels (5%). There were some differences in preferences with destination (Figure Tourist accom.) with 4-5 star hotels being preferred by international travellers (38 vs 12%, respectively). This may reflect cost and availability; self-contained accommodation suits the cultural preference of Saudis for privacy, particularly for women family members. This type of accommodation is therefore perhaps more widely available at affordable prices within domestic holiday destinations in Saudi Arabia.

**Error! No topic specified.**

**Question 11. Favourite activities while on holiday.**

Respondents were free to mark as many of the choices offered as they liked, percentages presented in Figure (Tourist activity) are therefore calculated from a potential maximum of 202, i.e. selected by everyone. Widely pursued activities were sight-seeing, shopping, visiting friends, hunting, walking and picnicking. The prevalence of outdoor activities suggests potential interest in protected area visits.

**Error! No topic specified.**

**Question 12. Recognition of the NCWCD.**

An encouraging 180 out of 200 (90%) people indicated they had heard of the NCWCD; 80% (out of 103 who indicated where from) from the television, 45% from newspapers, and only 11% from friends, despite the questionnaire having been distributed by NCWCD staff. (Note: people may know the NCWCD from more than one source, so percentages do not add up to 100). Seventy seven people out of the 180 that knew of the NCWCD did not indicate where from, so the actual level of recognition could be as low as 51% (103/202). Nevertheless, these figures suggest that the NCWCD has done a good job of establishing a reasonable public profile.

**Question 13. Recognition of NCWCD protected areas.**

Fewer people indicated they knew of any NCWCD protected areas (61%; 123/202), and fewer still could name any (47%; 96/202 - including accurate names and reasonable synonyms). This is a little unusual given the high level of recognition of the NCWCD.
through the news media and may suggest need for an examination of the content of television and newspaper coverage. The most widely recognised protected area was Harrat al-Harrah (Figure Tourist PA), followed by Mahazat as-Sayd, and Al-Khunfah. There was some regional bias evident, with respondents being most able to name a protected area from their local area. Interestingly, well-established and apparently high-profile sites such as ‘Uruq Bani Ma’arid were unnamed, whereas low-profile or as-yet unmanaged sites such as Umm al-Qamari and At -Taysiyah received at least a low level of recognition.

Error! No topic specified.

**Question 14. Hypothetical preferred activities in NCWCD protected areas.**

Respondents were asked to answer yes or no as to whether they would like to camp, walk around, drive around, or be given a tour within a wildlife protected area. Seventy-two % indicated they would like to take a tour; 64% wished to camp; 58% to walk, and 43% to drive around. Again, these percentages are based on a potential maximum response of 202 for each activity.

**Question 15. Level of interest in nature-based tourism activities.**

Respondents were asked to rate their level of interest as either ‘very high’, ‘moderate’, ‘low’, or ‘no interest’, to five scenic site activities: day visits; overnight visits; tours; viewing wild animals; and hunting wildlife. Responses are presented in Table (xxx).

**Table. Ratings of levels of interest in scenic area activities; figures are percentages of respondents.**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Very High</th>
<th>Moderate</th>
<th>Low</th>
<th>No Interest</th>
<th>Sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day visits</td>
<td>81.6</td>
<td>12.7</td>
<td>3.1</td>
<td>2.6</td>
<td>196</td>
</tr>
<tr>
<td>Overnight visits</td>
<td>14.2</td>
<td>27.9</td>
<td>26.3</td>
<td>31.6</td>
<td>190</td>
</tr>
<tr>
<td>Tours</td>
<td>63.2</td>
<td>18.7</td>
<td>9.3</td>
<td>8.8</td>
<td>193</td>
</tr>
<tr>
<td>View animals</td>
<td>64.3</td>
<td>27.0</td>
<td>4.6</td>
<td>4.1</td>
<td>196</td>
</tr>
<tr>
<td>Hunting</td>
<td>35.2</td>
<td>21.8</td>
<td>17.6</td>
<td>25.4</td>
<td>193</td>
</tr>
</tbody>
</table>

Day visits were the most popular, with interest rated either ‘very high’ or ‘moderate’ by >94% of people; guided tours and wild animal viewing were highly rated also by >80% of people. Hunting received a ‘very high’ interest rating by 35% of respondents, according closely with the 32% of people who indicated that they hunted during holidays.
(Question 11). Overnight visits were the least popular, rated ‘low’ or ‘no interest’ by ~58%.

Question 16. Hypothetical preferred facilities for visitors to wildlife protected areas.

Respondents were asked to answer yes or no as to whether they would like to have any or all of up to 11 listed facilities within a wildlife protected area. In order of decreasing preference the facilities are: campsites (not necessarily overnight); toilets; guides; children’s playground; restaurant; wildlife displays; driving trails; snack shop; picnic areas; walking trails; hotel or villa accommodation (Table xxx).

Table. Preferred facilities for tourist visitors to wildlife protected areas; figures are percentage of respondents selecting each facility, and are calculated from the total numbers (sample size) providing a valid response. Facilities are listed in decreasing order of preference, with those above the dotted line being selected by at least half the people.

<table>
<thead>
<tr>
<th>Facility</th>
<th>Selected by (%)</th>
<th>Sample size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Campsite</td>
<td>73</td>
<td>199</td>
</tr>
<tr>
<td>Toilet</td>
<td>65</td>
<td>198</td>
</tr>
<tr>
<td>Guides</td>
<td>63</td>
<td>199</td>
</tr>
<tr>
<td>Children’s playground</td>
<td>50</td>
<td>199</td>
</tr>
<tr>
<td>Restaurant</td>
<td>49</td>
<td>198</td>
</tr>
<tr>
<td>Wildlife displays</td>
<td>47</td>
<td>199</td>
</tr>
<tr>
<td>Driving trails</td>
<td>41</td>
<td>199</td>
</tr>
<tr>
<td>Snack shop</td>
<td>32</td>
<td>199</td>
</tr>
<tr>
<td>Picnic areas</td>
<td>30</td>
<td>199</td>
</tr>
<tr>
<td>Walking trails</td>
<td>27</td>
<td>199</td>
</tr>
<tr>
<td>Hotel or villa accommodation</td>
<td>21*</td>
<td>56*</td>
</tr>
</tbody>
</table>

* Not all questionnaire forms offered ‘hotel or villa’ accommodation as an option.

Summary

Although large numbers of Saudis choose to holiday overseas, there is evidence that leisure tourism away from the home is growing within Saudi Arabia. Saudi tourists have access to and are willing to spend significant amounts of money during their holidays. Domestic tourism is concentrated but not restricted to the summer months, consequently mountain and coastal destinations are preferred. At these sites Saudi tourists expect to find good quality hotel and especially self-contained apartment style
accommodation. During vacations tourists most commonly have access to a vehicle, often a private car, but also taxis and rental cars, giving them reasonable mobility to pursue a variety of activities, many of them outdoor such as viewing animals, sight-seeing and hunting. There is a high level of interest in day visits to scenic sights, and guided tours, particularly to see wild animals, suggesting good potential for interest in visiting wildlife protected areas. Any such areas should provide toilets, campsites, guides and a children’s play area, also a restaurant, driving trails and wildlife displays, but not hotel or villa accommodation.

Conclusions
By combining the key findings of both the student and the tourist questionnaires, it is possibly to sketch out the features of a hypothetical protected area tourist attraction.

The protected area will:

- be within driving distance of an existing tourist center, particularly mountain or coastal holiday areas;
- target youth and families primarily;
- be close to 4 and 5-start hotel, and apartment and villa accommodation;
- provide suitable conditions for day visits during summer;
- contain: toilets, campsites (for day visits), guides, a playground area, guided tours and interpreted wildlife displays, a restaurant, and both driving and walking trails;
- feature ungulates, e.g. Arabian oryx and gazelles, and if possible carnivores, e.g. leopard, fox, wolf, or hyena;
- provide focussed environmental public awareness materials and programmes, and aim to facilitate schools visits and projects.

In the next chapter I examine the potential suitability of sites within the current NCWCD protected area network.
Chapter 6

Review and assessment of the suitability of NCWCD protected areas as eco-tourism sites

Introduction

The NCWCD’s wildlife protected area estate currently consists of 14 sites plus two research stations. Clearly not all these areas will be suitable for tourism development: some may be too remote, too difficult to access or lack suitable facilities, other may contain habitats or species that are sensitive to human disturbance. What is needed is a set or criteria within which to assess the relative suitability of sites, and to place potential tourist attractions in some order of priority.

This chapter reviews the existing network of wildlife protected areas in Saudi Arabia with the aim of providing a basis for strategic planning by the NCWCD for future eco-tourism development. The aim of the this review is to compile in one location that information needed to set protected area tourism development priorities and compatible activities.

Methods

I have chosen to concentrate on 10 of the protected areas plus the two research stations, twelve sites in all. I have not included the four most recently declared protected areas, At-Taysiyah, Umm ar-Rimth, Nafud al-`Uraq and Al-Jandaliyah, as these areas do not yet have any formal NCWCD management presence.

The information summarised for each site is not meant to be an exhaustive inventory of natural, socio-political or administrative features, nor a complete basis for management planning. Rather I have concentrated on those features of a protected area that would influence its suitability as an eco-tourist destination. At the end of each area’s summary I present a simple four-point rating system for six key attributes, relating to the presence of attractive or spectacular scenery, visibility of wildlife, presence of cultural or historical features, status of existing visitor facilities, ease of access, and sensitivity of the protected area’s key features to human disturbance. The application of this rating system to each attribute is more fully explained in the following section. By summing the ratings it is possible to rank all the protected areas and achieve an objective list of priority sites for further attention and possible future development.
Each protected area can them be assigned to one of three broad groupings, depending on the ease and/or desirability of developing tourism operations in each. The overall ranking within each group will guide allocation of planning resources. This simple system could be used in the future for new NCWCD wildlife protected areas and other natural sites, to allow them to be placed within an overall ranked list of priorities.

The data presented in these summaries has been compiled from NCWCD reports and publications, including protected areas management plans where these are available, and from the reports and publications of other regional organisations, as well as from discussions with my colleagues in the NCWCD and its research centers. Additional information was gathered during from site visits to nine of the twelve protected areas summarised here.

Full data sheets and area maps are presented in Appendix (xx). Summaries only are given below.

**Explanation of Rating Values for PA Assessment**

**Overall Rating**

1 = highly suitable for tourism  
2 = moderately suitable for tourism  
3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only;  
4 = unsuitable for tourism in the foreseeable future.

**Wildlife Visibility** (with regard to named species)  
1 = guaranteed, i.e. all visitors will be able to view, regardless of season of time of day.  
2 = probable, i.e. the majority of visitors will be able to view, but likelihood of viewing may be improved in certain seasons or times of day.  
3 = possible, i.e. the majority of visitors would not be expected to view, due to low density, or to high degree of wariness or other behaviours.  
4 = unlikely, i.e. unlikely that any visitors will be able to view, due to extremely low densities, or to very high degree of wariness or cryptic behaviour.

**Other Attributes**

**Scenery**  
1 = exceptional scenery with broad public appeal, e.g. large areas of permanent water, large trees, mountains or escarpments, or coastal habitats.
2 = attractive scenery with wide public appeal, e.g. small areas of permanent or temporary water, relatively dense natural vegetation, tall sand dunes, hills and rocky outcrops.

3 = landscapes with limited or specialised public appeal, e.g. steppe deserts, harrats, undulating plains with limited vegetative cover, or sand sheets.

4 = landscapes with low public appeal, e.g. gravel or sandy plains with little or no vegetative cover.

**Wildlife**

1 = presence of high profile, flagship, species, or a high diversity or density of wildlife, virtually guaranteed to be seen by the majority of visitors, e.g. Arabian oryx.

2 = presence of high profile species, or a moderate diversity or density of wildlife, that are likely to be seen by the majority of visitors, e.g. sand gazelles, ibex.

3 = presence of certain key species, e.g. rare or threatened, or a low density or diversity of wildlife, that will be seen by only some visitors, e.g. houbara bustard; mountain gazelles.

4 = either very low density or diversity of wildlife, or high profile species, but extremely wary and unlikely to be seen by any visitors, e.g. Arabian leopard; Arabian wolf; striped hyena.

Note: Wildlife rating takes into account the wildlife visibility classifications for key species (see above).

**Cultural/historical**

1 = features with high public recognition and broad public appeal, e.g. Medain Saleh (Nabatean city north of Medina); remnants of the Hijaz railway bombed by Lawrence of Arabia; religious (Islamic) sites, particularly those associated with the Prophet.

2 = features with moderate public appeal, e.g. ruined caravanserais or Turkish forts; early mosques and forts of the Islamic period; pre-historic rock etchings depicting wildlife.

3 = features with limited or only specialised public appeal, e.g. pre-historic (pre-Islamic) sites; harvest of traditional plants for food or medicines.

4 = lacking any features of interest.

**Facilities**

1 = at least basic facilities, e.g. toilets, rubbish disposal, picnic sites, meeting room, first aid, already present on site.

2 = some basic facilities, e.g. toilets, first aid, accessible to visitors.
3 = basic facilities absent, but relatively easily established.
4 = basic facilities absent, and not easily established.

Access
1 = close to main population centers and major highways, with sealed or well-graded roads allowing ready access to key sites.
2 = relatively close to sealed public roads, with at least well-graded tracks allowing access to key sites.
3 = travel over major, but unsealed and ungraded tracks is necessary over distances of greater than 20 km to gain access to key sites, with 4WD vehicles generally necessary.
4 = long distance (50+km) travel over unmarked terrain in 4WD vehicles necessary to gain access to key sites.

Sensitivity
1 = natural and historical/cultural features of the area very resilient to human presence and unregulated, but responsible, activity - AND - safe for public (assumes visitors are responsible and adequately prepared).
2 = natural and historical/cultural features moderately resilient to human presence and loosely regulated activity - AND - safe for public.
3 = natural or historical/cultural features could be damaged unless human activities are closely regulated - AND - safe for public.
4 = natural or historical/cultural features extremely sensitive to human presence - OR - safety of public cannot be guaranteed.

Summed Ratings = total of all ratings
Range: 6 (most suitable for tourism) - 24 (most unsuitable for tourism).

Ranking = position of summed rating out of the 12 protected areas reviewed (Range: 1 - 12)

Category
Group 1: High priority for tourism development - immediate action possible.
   All attribute ratings 1 or 2.
Group 2: Low priority for tourism development - future action possible.
   Any attribute rated 3; none rated 4.
Group 3: Unsuitable for tourism development in the medium to long-term.
Any attribute rated 4.
Summary of Tourism Development Assessment for NCWCD
Protected Areas

(areas given in alphabetical order)

♦ Al Khunfah

Summary Assessment Notes

Scenic and landscape : Attractive, moderately well vegetated and varied landscapes comprising undulating plains, wadis, sand dunes and large rocky outcrops.

Wildlife : Low densities and wariness of gazelles and other wildlife would mean not all visitors could obtain sightings.

Cultural/historical : No significant features.

Existing facilities : Currently suitable for only limited volume day visits to the main camp.

Location and access : Relatively good access from Taymah, over graded, but not all-weather, tracks.

Sensitivity / security : Safe and resilient to human disturbance.

Potential activities : Circuit drives, picnics and camping.

---

Rating

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenery</td>
<td>2</td>
</tr>
<tr>
<td>Wildlife</td>
<td>3</td>
</tr>
<tr>
<td>Cultural/historical</td>
<td>3</td>
</tr>
<tr>
<td>Facilities</td>
<td>3</td>
</tr>
<tr>
<td>Access</td>
<td>2</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>1</td>
</tr>
<tr>
<td>Summed Ratings</td>
<td>14</td>
</tr>
</tbody>
</table>

Ranking 8/12

Category Group 2: Low priority for tourism development.
♦ At-Tubayq

Summary Assessment Notes

Scenic and landscape : Attractive escarpment, jibal and canyon rock landforms.
Wildlife : Nubian ibex may be seen by some visitors.
Cultural/historical : Early Christian/Jewish religious structures of potential interest if central Government authorities are amenable to facilitating appropriate access and interpretation.
Existing facilities : Unsuitable for any commercial-scale visits.
Location and access : Relatively difficult access over rough tracks.
Sensitivity / security : Restrictions on movements in the border area with Jordan may limit public access.
Potential activities : Circuit drives and guided tours to view ibex and archaeological sites.

Rating

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

Scenery : 2
Wildlife : 3
Cultural/historical : 3
Facilities : 4
Access : 3
Sensitivity : 4
Summed Ratings = 19

Ranking 11/12

Category Group 3: Unsuitable for tourism development in the medium to long-term.
Farasan Islands

Summary Assessment Notes

Scenic and landscape: Exceptional coastal and marine landscapes.

Wildlife: Marine life readily viewed using only basic equipment; seabirds relatively abundant, and high probability of viewing gazelles. Nesting turtles could also be an attraction.

Cultural/historical: Pearling and artisanal fishing still practised, offering glimpse of traditional lifestyles.

Existing facilities: Settlement areas provide adequate accommodation and other facilities, although dedicated structures may be required if tourist volume is to expand.

Location and access: Readily accessible via daily ferry from Jizan; which may be an added attraction.

Sensitivity / security: Safe for visitors, and most sites relatively resilient to responsible tourism, although key areas such as coral reefs and nesting sites for birds and turtles would require careful regulation of human activities.

Potential activities: Diving, swimming, fishing, guided tours, camp and picnic sites, development of a visitor center, tours to view gazelles, seabirds and nesting turtles.

Rating

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

Scenery: 1
Wildlife: 1
Cultural/historical: 2
Facilities: 2
Access: 2
Sensitivity: 2
Summed Ratings = 9

Ranking 1=12

Category Group 1: High priority for tourism development.
Harrat al-Harrah

Summary Assessment

Scenic and landscape: Starkness and isolation does not have wide public appeal.

Wildlife: Low diversity, at low density, and generally extremely unapproachable.

Cultural/historical: Seasonal collection of faga has been an important traditional use; high density of pre-historic sites provides a specialised interest.

Existing facilities: Inadequate for anything other than day visits or self-contained camping.

Location and access: Access to central areas requires 4WD journey of up to 150 km one-way from nearest sealed roads.

Sensitivity / security: Safe socio-politically; landscape and natural features very resilient to moderate human presence.

Potential activities: Day trips or supervised overnight camping during winter and spring, associated with visits to selected pre-historic sites, and/or regulated collection of faga. Wildlife sightings would be a bonus, but not a selling point.

Rating

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

Scenery: 3
Wildlife: 3
Cultural/historical: 3
Facilities: 3
Access: 3
Sensitivity: 1
Summed Ratings = 16

Ranking 9/12

Category Group 2: Low priority for tourism development.
**Ibex Reserve**

Summary Assessment Notes

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenic and landscape</td>
<td>Beautiful wadi canyons with good natural vegetative cover outside grazing zones.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Good possibilities to view ibex and mountain gazelles.</td>
</tr>
<tr>
<td>Cultural/historical</td>
<td>Traditional hema designation may be of limited interest.</td>
</tr>
<tr>
<td>Existing facilities</td>
<td>Generally inadequate for all but limited volume day visits.</td>
</tr>
<tr>
<td>Location and access</td>
<td>Relatively easy access via well marked tracks, with the Reserve within reach from the major urban centre of Riyadh.</td>
</tr>
<tr>
<td>Sensitivity / security</td>
<td>Safe and moderately resilient to human activities.</td>
</tr>
<tr>
<td>Potential activities</td>
<td>Driven tours and circuit drives to view wildlife, picnic and camping sites, with scope for a visitor centre.</td>
</tr>
</tbody>
</table>

Rating

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenery</td>
<td>1</td>
</tr>
<tr>
<td>Wildlife</td>
<td>2</td>
</tr>
<tr>
<td>Cultural/historical</td>
<td>3</td>
</tr>
<tr>
<td>Facilities</td>
<td>3</td>
</tr>
<tr>
<td>Access</td>
<td>2</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>2</td>
</tr>
<tr>
<td>Summed Ratings</td>
<td>13</td>
</tr>
</tbody>
</table>

Ranking 7/12

Category Group 1: High priority for tourism development.
**KKWRC (Thumamah Region)**

**Summary Assessment Notes**

**Scenic and landscape:** Attractive escarpment landscapes.

**Wildlife:** Captive collections would be a great public interest, particularly native gazelles.

**Cultural/historical:** Not known.

**Existing facilities:** Adequate for day visits and regulated overnight camping.

**Location and access:** Easily reached on good roads from Riyadh.

**Sensitivity / security:** Safe for visitors, and potential impacts readily minimised.

**Potential activities:** Tours of the captive collections, circuit drives and lookout points, picnic and camping, talks and displays.

---

**Rating**

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

- **Scenery:** 2
- **Wildlife:** 1
- **Cultural/historical:** 3
- **Facilities:** 2
- **Access:** 1
- **Sensitivity:** 1

**Summed Ratings = 10**

---

**Ranking**

3/12

**Category**

Group 1: High priority for tourism development.
Mahazat as-Sayd

Summary Assessment Notes

Scenic and landscape: Generally flat or undulating landscape is of only limited appeal, but much could be made of the dramatic recovery of the natural vegetation, particularly grasses and trees, following protection from livestock grazing.

Wildlife: Arabian oryx and reem gazelles are both high-profile and easily viewed.

Cultural/historical: Old pilgrim (Haj) road of possible interest.

Existing facilities: Existing camps could host day-visitors, or limited numbers of over-night guests, but dedicated visitor center is required at a location other than that of either of the two existing research/ranger camps.

Location and access: Easily accessible from sealed roads, including the major Riyadh highway.

Sensitivity / security: Safe for visitors, but re-established wildlife populations vulnerable to disturbance at certain times of the year.

Potential activities: Day trips with driven or walking tours with the focus on viewing reintroduced ungulates; regulated overnight camping; camel treks, particularly along the old pilgrim road.

Rating

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

Scenery: 2
Wildlife: 1
Cultural/historical: 3
Facilities: 3
Access: 1
Sensitivity: 2
Summed Ratings = 12

Ranking: 5=/12

Category: Group 1: High priority for tourism development.
### Majami’ al-Hadb

**Summary Assessment Notes**

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenic and landscape</td>
<td>Attractive exfoliation domes and areas with good stands of native trees.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>Low diversity and density of native species, not easily viewed.</td>
</tr>
<tr>
<td>Cultural/historical</td>
<td>No significant features.</td>
</tr>
<tr>
<td>Existing facilities</td>
<td>None available.</td>
</tr>
<tr>
<td>Location and access</td>
<td>Difficult access over rough and poorly marked tracks.</td>
</tr>
<tr>
<td>Sensitivity / security</td>
<td>Tribal disputes in the region mean that visitor safety could not be guaranteed.</td>
</tr>
<tr>
<td>Potential activities</td>
<td>-</td>
</tr>
</tbody>
</table>

**Rating**

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

<table>
<thead>
<tr>
<th>Aspect</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenery</td>
<td>2</td>
</tr>
<tr>
<td>Wildlife</td>
<td>3</td>
</tr>
<tr>
<td>Cultural/historical</td>
<td>4</td>
</tr>
<tr>
<td>Facilities</td>
<td>4</td>
</tr>
<tr>
<td>Access</td>
<td>3</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>4</td>
</tr>
</tbody>
</table>

Summed Ratings = 20

**Ranking**

12/12

**Category**

Group 3: Unsuitable for tourism development in the medium to long-term.
National Wildlife Research Center (NWRC)

Summary Assessment Notes

**Scenic and landscape**: Attractive, but not spectacular rock formations and natural vegetation.

**Wildlife**: Unrivalled site for viewing native Arabian species.

**Cultural/historical**: Rock paintings have only limited public appeal, but could be developed as part of a tour in the extension.

**Existing facilities**: Some day, and limited overnight, visits currently possible and underway, with scope for expansion of numbers without major new facilities being required. A more natural setting for wildlife displays would be possible, but would require significant development.

**Location and access**: Easily reached as a day trip from major urban centres.

**Sensitivity / security**: With regulated or restricted access around certain animals facilities and enclosures, the NWRC could easily cope with a reasonable volume of visitors.

**Potential activities**: Guided tours, by bus, car or on foot, of the NWRC animal collections, with viewing of educational videos and talks by staff; visitor centre, lookout points and circuit drives or walks, with picnic areas, could be established in the NR extension area, with a selection of animals visible within large natural enclosures.

---

**Rating**

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

<table>
<thead>
<tr>
<th>Category</th>
<th>Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenery</td>
<td>2</td>
</tr>
<tr>
<td>Wildlife</td>
<td>1</td>
</tr>
<tr>
<td>Cultural/historical</td>
<td>3</td>
</tr>
<tr>
<td>Facilities</td>
<td>1</td>
</tr>
<tr>
<td>Access</td>
<td>1</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>1</td>
</tr>
</tbody>
</table>

**Summed Ratings** = 9

**Ranking** 1=/12

**Category** Group 1: High priority for tourism development.
Raydah

Summary Assessment Notes

**Scenic and landscape**: Superb section of mature escarpment juniper cloud forest with wonderful views.

**Wildlife**: Native birds, including endemics, may be seen by patient visitors; forest vegetation would be a draw card.

**Cultural/historical**: Traditional terrace agriculture and bee-keeping could of interest, along with old watch towers in the lower areas.

**Existing facilities**: With accommodation readily available in Abha and Soudah, the reserve needs only to provide modest reception facilities, with toilets and rubbish disposal.

**Location and access**: The top of the reserve is readily accessible from the Al Soudah road. Access down the escarpment is via a steep track subject to erosion. Walking access to upper parts of the reserve would be appropriate.

**Sensitivity / security**: Safe for visitors, but the small size of the area means that human activities would need to be regulated.

**Potential activities**: The football field near the top of the escarpment should be secured for the reserve to eliminate the rubbish problem use of the area currently generates. It would be an excellent site for a visitor centre - providing views over the reserve. Walking tours, would be appropriate as far down as the farm, which could be managed as a viewpoint. Specialist bird tours would be possible.

---

**Rating**

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

**Scenery** : 1

**Wildlife** : 2

**Cultural/historical** : 2

**Facilities** : 3

**Access** : 1

**Sensitivity** : 2

**Summed Ratings** = 11
Ranking 4/12

Category Group 1: High priority for tourism development.
Umm al-Qamari Island

Summary Assessment Notes

Scenic and landscape : Topographically relatively uninteresting, but coastal and marine features are of interest.
Wildlife : Seasonally dense colonies of nesting seabirds would be readily viewed.
Cultural/historical : No features of interest.
Existing facilities : None available.
Location and access : Difficult access, with no existing commercial ferry operations.
Sensitivity / security : Safe for visitors, but small size of the island and the density of seabirds means that the wildlife would be extremely vulnerable to human visitors.
Potential activities : -

Rating

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

Scenery : 2
Wildlife : 2
Cultural/historical : 4
Facilities : 4
Access : 3
Sensitivity : 3
Summed Ratings = 18

Ranking 10/12

Category Group 3: Unsuitable for tourism development in the medium to long-term.


`Uruq Bani Ma’arid

Summary Assessment Notes

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenic and landscape</td>
<td>Spectacular sand desert and escarpment landscapes, with some of the world’s highest sand dunes.</td>
</tr>
<tr>
<td>Wildlife</td>
<td>The only truly wild population of Arabian oryx in Saudi Arabia; animals readily viewed by visitors, and a high probability of seeing sand and mountain gazelles.</td>
</tr>
<tr>
<td>Cultural/historical</td>
<td>The Rub Al-Khali is the largest sand desert in the Arabian Peninsula and features prominently in both the writings of early European travellers, and regional lore.</td>
</tr>
<tr>
<td>Existing facilities</td>
<td>Basic minimum necessary for limited volume day visits.</td>
</tr>
<tr>
<td>Location and access</td>
<td>Relatively easy access to the main camp and spectacular dune and escarpment views, via a graded track from the main Wadi Dawasir-Najran highway.</td>
</tr>
<tr>
<td>Sensitivity / security</td>
<td>Supervised tours and/or picnics or camping on the escarpment should pose no dangers to visitors, and natural features moderately resilient to human disturbance.</td>
</tr>
<tr>
<td>Potential activities</td>
<td>Tour drives, or circuit drives with suitable vehicles, to view accessible oryx, visit dunes and obtain views from the top of the escarpment. Day and overnight camping would be possible.</td>
</tr>
</tbody>
</table>

Rating

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

Scenery : 1  
Wildlife : 2  
Cultural/historical : 2  
Facilities : 3  
Access : 2  
Sensitivity : 2  
Summed Ratings = 12

Ranking  5=/12

Category Group 1: High priority for tourism development.
Summary PA Groupings and Rankings

Group 1. High priority for tourism development - immediate action possible.

<table>
<thead>
<tr>
<th>Overall rank</th>
<th>Protected area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1=</td>
<td>NWRC</td>
</tr>
<tr>
<td>1=</td>
<td>Farasan Islands</td>
</tr>
<tr>
<td>3</td>
<td>KKWRC</td>
</tr>
<tr>
<td>4</td>
<td>Raydah</td>
</tr>
<tr>
<td>5=</td>
<td>Mahazat as-Sayd</td>
</tr>
<tr>
<td>5=</td>
<td>`Uruq Bani Ma’arid</td>
</tr>
<tr>
<td>7</td>
<td>Ibex Reserve</td>
</tr>
</tbody>
</table>

Group 2. Low priority for tourism development - future action may be possible.

<table>
<thead>
<tr>
<th>Overall rank</th>
<th>Protected area</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Al-Khunfah</td>
</tr>
<tr>
<td>9</td>
<td>Harrat al-Harrah</td>
</tr>
</tbody>
</table>

Group 3. Unsuitable for tourism development in the medium to long-term

<table>
<thead>
<tr>
<th>Overall rank</th>
<th>Protected area</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Umm al-Qamari Island</td>
</tr>
<tr>
<td>11</td>
<td>At-Tubayq</td>
</tr>
<tr>
<td>12</td>
<td>Majami’ al-Hadb</td>
</tr>
<tr>
<td>Area</td>
<td>Rank</td>
</tr>
<tr>
<td>---------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Farasan Islands</td>
<td>1</td>
</tr>
<tr>
<td>NWRC</td>
<td>1</td>
</tr>
<tr>
<td>KKWRC and environs</td>
<td>3</td>
</tr>
<tr>
<td>Raydah</td>
<td>4</td>
</tr>
<tr>
<td>Mahazat as-Sayd</td>
<td>5</td>
</tr>
<tr>
<td>`Uruq Bani Ma'arid</td>
<td>5</td>
</tr>
<tr>
<td>Ibex Reserve</td>
<td>7</td>
</tr>
</tbody>
</table>

Table 6.1 Summary of NCWCD wildlife protected areas rated as high priority for eco-tourism development.
Chapter 7

A draft framework for the development of an eco-tourism strategy for Saudi Arabian wildlife protected areas

“[A] strategy will guide the development and management of ecotourism to ensure that the protected area is not overrun and destroyed by tourists, to establish mechanisms to generate employment and revenue for the protected area and surrounding communities, and to create opportunities for environmental education for visitors.”

Elizabeth Boo (1993)

Introduction

As stated in chapter one, the aim of this study was to provide a starting point from which the NCWCD could formulate a strategy for the development of eco-tourism projects within its network of wildlife protected areas. Such a strategy would be essential in order to co-ordinate efforts, both within the NCWCD departments, but also between the NCWCD and other partner, whether in the government or the private sector. The main value of a comprehensive strategy would be to ensure that any and all tourism development associated with protected areas conforms to a single set of guiding principles, and that isolated one-off project development does not take place outside a transparent regulatory structure. An additional benefit in the creation of an eco-tourism strategy for protected areas is that the NCWCD would be well positioned to provide meaningful input into any future national tourism strategy.

In this chapter the basic components of a strategy are laid out with the intention that these will provide a basis for the NCWCD to formulate the necessary planning documents. In order to achieve consensus even at this early pre-planning stage, the components and principles set out here arose from a series of meetings with NCWCD staff. The main planning meeting took place on 29 March 2000; in a morning session lasting about two hours the general findings of the preceding chapters in this report were presented to the assembled staff of the NCWCD at the Commission headquarters in Riyadh. The formal presentation was followed by an open discussion which ranged across a number of topics relating to the desirability and feasibility of tourism development in protected areas. This general session was followed by a more in-depth facilitated workshop involving seven key members of NCWCD staff, from the...
departments of Planning and Protected Areas, Research and Studies, and Monitoring, with input from research staff of the King Khaled Wildlife Research Center and the World Conservation Union (IUCN) adviser. At this meeting draft guidelines for eco-tourism were distributed for discussion. The results of these discussions are summarised below. Meeting minutes were drawn up and distributed to group members for further input, and a report was presented to the NCWCD Secretary General.

**Summary of discussions**

**General tourism issues; scale and scope of tourism in wildlife protected areas**

The group endorsed the need for the NCWCD to guide the national development of tourism through adoption of minimum impact guidelines and setting examples of best practise. However, there was some concern over whether wildlife protected areas, chosen to protect key species and their habitats, were appropriate locations for the development of tourism.

It was suggested that it was important that the NCWCD “have a say from the start” over how natural resources are exploited by the tourism industry, and that while one focus of the NCWCD would be on protected areas, these represented only one point on a spectrum of natural resource uses. The point was made that eco-tourism is often characterised by low visitor numbers and as such could be appropriate for protected areas, whereas larger scale nature-based tourism could and should be developed by the NCWCD through wildlife parks, particularly in order to educate the wider public on environmental issues.

There was discussion concerning whether small tourist groups could generate sufficient revenue and other benefits, particularly for local communities. There would be scope for the development by local communities of subsidiary attractions, but the very real problem of social and cultural impacts would remain.

The need for the NCWCD to gain experience in developing and implementing tourism projects was stressed by the group. This may include examination of existing successful nature-based tour operators, e.g. Golden Eagle Travel (brochures provided to the group by Mr Ady), and especially training. Dr Seddon advised the group that the USA-based Eco-tourism Society (TES) runs training workshops on eco-tourism project development.

**International tourism development in Saudi Arabia.**

Recently the Saudi Government has opened the way for limited, regulated international tourism through sponsor companies. The group considered this to present an
opportunity to NCWCD for the development of limited impact, high quality eco-tourism
development in selected protected areas. Special interest international tourists groups,
typically retired, wealthy Americans and Europeans, could potentially generate significant
revenue but with minimal impact.

The unique attractions of sites such as the `Uruq Bani Ma’arid protected area were
highlighted as an example of potentially appropriate areas for development. It was
suggested that camel treks in UBM would be “the quintessential desert experience”. The
group agreed that NCWCD could become a sponsor of groups for such visits, but that
the NCWCD would perhaps need to work with established tour operators, and that
permission would need to be obtained for the Commission to sponsor special interest
groups.

The group was advised that government regulations would provide permission for
retired people only to enter as international tourists. It was agreed that this would be a
desirable target market, being people with time, money and interest.

It was further suggested that an eco-tourism approach could also be used to develop new
protected areas.

**Benefiting local communities**

A key component of any eco-tourism venture was the development of mechanism to
involve and benefit local communities. The group discussed the problem of “leakage”,
i.e. the loss of tourist revenue to sectors outside the focus of operations. It was
considered that whereas wealthy tourist visitors would have greater spending power, they
would also demand greater facility development, thus another important sector would be
domestic, lower-income tourists.

There followed a discussion on how best to ensure that locals would benefit from
tourism. Dr Robinson presented southern African examples, Zimbabwe’s CAMPFIRE
programme, and South Africa’s Kruger National Park and Natal Parks. The keys to the
success of these schemes has been the incorporation of local community needs from the
beginning, regulated and preferential access by locals to protected areas, and the
restriction of mass-tourism to defined areas.

The group agreed that it was important to build on existing patterns of tourist
movements and preferences, and to identify nodes containing a cluster of potential
attractions, e.g. Medain Saleh and Harrat Uwayridh; Dowmat al Jandal and Harrat al-
Harrah; Najran and the Asir.

There followed a general discussion on the use of volunteers and temporary workers, e.g.
teachers, university students and scout groups, to be trained and used seasonally as tour
guides. The NCWCD should additionally seek to provide an environmental awareness component to existing training programmes for the Asir region.

**How to proceed?**
The group agreed on a number of key points:

- eco-tourism development in wildlife protected areas should not be seen as a money-making exercise, but rather as a management tool;
- the NCWCD should investigate partnerships with the private sector for eco-tourism development in protected areas, ensuring that:
  - contractors return a portion of income to the protected area;
  - strong breech of contract regulations are in place to avoid environmental, damage;
  - employees be drawn from local communities;

Planning Department staff have already drawn up, or are planning, a number of draft documents, including: codes of conduct for tour operators; tourist guidelines, and guidelines for minimum impact camping.

What is required therefore is a comprehensive NCWCD strategy on nature-based tourism development, which would allow the Commission to contribute to national planning and would identify linkages with other Government departments. Such a strategy would consider the full spectrum of nature-based tourism activities, of which eco-tourism development of selected protected areas would be one component.

The group recommended that Dr Seddon proceed with the development of draft guidelines and principles for protected area tourism, for later incorporation into wider NCWCD plans.
Strategic Planning for Protected Area Tourism

1. **Vision Statement**

Selected sites within the NCWCD protected area estate are developed for low impact, regulated public access which enhances conservation management, raises public awareness and beneficially involves local communities, and which serve as examples of best practise in the implementation of nature-based tourism in the Kingdom of Saudi Arabia.

2. **Objectives**

Eco-tourism in Saudi Arabian protected areas should serve:

a. **Conservation**: to enhance the protection of the flora and fauna of protected areas by minimising impacts, and by increasing public and inter-agency support.

b. **Education**: to increase public awareness and understanding of environmental conservation issues and ecosystem function.

c. **Recreation**: to provide the visiting public with a range of site-appropriate leisure activities and facilities in a natural setting.

d. **Community Participation**: to increase the active management participation of, and tangible benefits to local communities and other primary stakeholders.

3. **General Principles (guidelines to good practise)**

   A. **Conservation**

      • NCWCD protected areas are sites of natural beauty, high natural biodiversity, and encompass habitats for rare, threatened or flagship species, and should be managed to ensure the long-term maintenance of these intrinsic values.

      • Tourism within protected areas should contribute to conservation and be environmentally sustainable in the long-term.
• Tourism revenue should aid the protection and management of the respective protected areas.

B. **Public Enjoyment and Education**

• Tourism should seek to maximise public enjoyment by utilising and respecting the special character and needs of protected areas.

• Tourism is a means to allow regulated public access to natural areas and presents an opportunity to provide visitors with information on ecological processes and conservation programmes.

C. **Rural Economy**

• Tourism should provide tangible socio-economic benefits to communities surrounding protected areas.

• Local communities and other primary stakeholders should be actively involved in the planning and implementation of protected area tourism.

D. **Development and Design**

• Tourism activities should respect the special characters, scale and capacity of protected areas.

• Tourism development should be in keeping with local culture and should strive to enhance the landscape.

E. **Marketing and Promotion**

• Publicity and marketing of tourism should aim to increase public understanding and enjoyment of protected areas.

F. **Research and Monitoring**

• Long-term monitoring of visitor impacts are essential to ensure that protected area tourism does not exceed environmental or social carrying capacities.

• Research is necessary to improve understanding of ecosystem processes, to contribute to protected area management, and to provide accurate and up-to-date information for public education programmes.
G. **Training**

- Management, interpretation and support staff should be trained specifically for the special needs of protected area tourism to maximise visitor enjoyment and minimise visitor impacts.

4. **Activities**

**Topic 1: Protected area evaluation**

Features to be assessed:

- Which protected areas are potentially suitable for tourism development of some kind, in terms of wildlife, scenery, sensitivity, access, facilities etc.?
- What regional tourism attractions exist or are being developed that may influence visitor patterns to potentially suitable sites?
- What regional government programmes are planned or exist that may influence tourism development in potentially suitable sites?

**NCWCD departments concerned:**

- Planning and Protected Areas
- Monitoring
- Research and Field Studies

**Other Government departments:**

- Provincial government (Emara)
- Ministry of Municipal and Rural Affairs
- (National Commission on Tourism)

**Suggested structures:**

- The recently formed NCWCD Tourism Development Committee, with members drawn from the departments of Planning and Protected Areas, Monitoring and Research, could potentially build on the protected area assessment presented in this report (Chapter 6), incorporating parallel work on the development of wildlife parks (Ady 2000), and in liaison with other agencies, to produce a report recommending priority sites for future action.
Topic 2: Training

Questions to be addressed:

- What is to be the role of the rangers?
- What other staff are required?
- Where will the training be conducted and by whom?

NCWCD departments concerned:

- Monitoring
- Planning

Other Government departments:

- Ministry of Education

Other linkages:

- NCWCD-based Institute and United Nations Development Programme
- Asir-based Tourism College

Suggested structures:

- The NCWCD could develop an environmental training component within the existing Training Institute structure, which focuses on tourism-related topics at different levels, e.g. rangers and monitoring; guides; administrative staff; impact regulation and assessment. In addition the NCWCD could seek input into tourism training programmes nationally to ensure adequate consideration of environmental awareness and protection issues.

Topic 3: Infrastructure development

Questions to be addressed:

- What facilities are required within selected protected areas?
- Where should visitor facilities be situated?
- How and by whom should facilities be constructed?
- How and by whom will facilities be maintained?

NCWCD departments concerned:

- Planning and Protected Areas
- Monitoring
- Finance

Other Government departments:
- Ministry of Communications (road networks)
- Ministry of Post, Telegraph and Telephone

Other linkages:
- Architectural firms; Jeddah University Environmental Planning Department; regional Chambers of Commerce for wider private sector involvement.

Suggested structures:
- Development should be based on the best examples of existing projects and available international guidelines, and also on public attitudes and needs (Chapter 5). The ideal start would be the development of one or two pilot projects in liaison with architects and environmental planners to derive culturally appropriate structures and layouts.

**Topic 4: Monitoring and determining Limits of Acceptable Change (LAC)**

Questions to be addressed:
- What is the carrying capacity of selected sites?
- What are the Limits of Acceptable Change? (see box)
- How and who will monitor impacts?
- How will the results of monitoring regulate visitor numbers or impacts?

NCWCD departments concerned:
- Planning and Protected Areas
- Research and Field Studies
- Research centres

Other Government departments:
- Ministry of Agriculture
- Meteorological and Environmental Protection Administration

Other linkages:
• Universities

Suggested structures:

• This is a key topic. It will be necessary to assess and set limits to carrying capacity before projects are fully implemented to avoid a revenue-driven process of increasing visitor numbers and impacts. Monitoring should be on-going, and partners must under contractual obligation specifically with regard to environmental protection. The NCWCD must retain ultimate control over the scope, nature and location of developments and activities, possibly even through specific legislation. There should be provisions also for contingency planning, e.g., to reduce visitor impacts under adverse conditions, such as drought. These types of arrangements should feed also into national planning.

**Topic 5: Research**

Questions to be addressed:

• What needs to be known?
• Who will conduct the research?
• How will research tie-in to monitoring and to public education?

NCWCD departments concerned:

• Research and Field Studies
• Research centres

Other Government departments:

• Meteorological and Environmental Protection Administration

Other linkages:

• Universities

Suggested structures:

• Research will be associated with assessment of environmental and social carrying capacity, monitoring of impacts, and public awareness programmes. Research topics will include investigation of the population dynamics of key species; assessment of plant community structure and change, and community and visitor attitudes and
experiences. All these should provide feedback into tourism management.

**Topic 6: Promotion and marketing**

Questions to be addressed:

- What is the target market for each selected site?
- How will the tourism product be defined and presented to the public?
- Who will undertake to promote and market the product?

NCWCD departments concerned:

- Planning and Protected Areas
- Public Awareness

Other Government departments:

- Ministry of Commerce
- Chamber of Commerce, National Tourism Committee

Other linkages:

- Private sector, e.g. established tour operators

Suggested structures:

- This lies largely outside the area of NCWCD’s expertise; it would be appropriate therefore for the NCWCD to seek partnerships with the appropriate business sectors, retaining control over promotion content.

**Topic 7: Public education**

Questions to be addressed:

- What will be the content of environmental education materials?
- Who is the target audience for public awareness programmes?
- How and by whom will public education programmes be developed and implemented?

NCWCD departments concerned:

- Public Awareness

Other Government departments:

- Ministry of Education
Other linkages:

- Private sector production of high quality displays and other materials.

Suggested structures:

- The NCWCD should seek to liaise with the Ministry of Education to incorporate protected area visits within schools’ science education programmes.

**Topic 8: Local community involvement**

Questions to be addressed:

- What is the identity (tribal structure) of local communities at selected sites?
- What is the current socio-economic status of local communities?
- What are the current levels of involvement in protected area management by local communities?
- What are the current attitudes to the NCWCD and protected areas by local communities?
- How will local communities be involved in protected area management and tourism development?
- What benefits will accrue to local communities from protected area tourism?

NCWCD departments concerned:

- Planning and Protected Areas

Other Government departments:

- Ministry of Municipal and Rural Affairs
- Ministry of Interior
- Provincial Government

Other linkages:

- Tribal leaders

Suggested structures:

- This is a critical aspect, possibly best addressed through the creation of a Local Management Group, comprising tribal leaders, provincial government representatives and the NCWCD, and acting as a
decision making body for a given site. There would be scope also for parallel development of attractions and even the creation of new community-run protected sites in association with formal NCWCD protected areas. This would require stimulation and facilitation of local community efforts, and the definition of sets of respective responsibilities and obligations. Within such structures it would be possible to explore and develop mechanisms for deriving benefits. Other areas of involvement and benefit could include: policies or obligations on private sector partners to employ locals and to use local services; the development of local crafts; the improvement of local roads and services; and reduced or free access for locals into the protected area.

Topic 9: Revenue generation and funding

Questions to be addressed:

- What are the requirements for each site in terms of start-up (capital expenditure) and maintenance funding?
- Where will this initial and maintenance funding come from?
- What pricing structures are appropriate for public access to each site?
- By what mechanism can tourism revenue benefit the given protected area/the NCWCD/the local community/private sector partners?
- What are the expectations and limits on tourism revenue generation?

NCWCD departments concerned:

- Planning and Protected Areas
- Finance

Other Government departments:

- Ministry of Municipal and Rural Affairs
- Ministry of Finance
- Provincial Government

Other linkages:

- Tribal leaders
- Private sector partners

Suggested structures:
• It is necessary to ensure that revenue generated by tourism is distributed equitably. For example, contracts with private sector partners should stipulate that a percentage of revenue accrue to local communities and a percentage to the protected area itself. There is need also for a mechanism to allow protected area revenue to benefit both the NCWCD and the protected area, rather than becoming incorporated within central government budgets. This is timely as the NCWCD has been directed to consider ways in which to generate a proportion of its own funding, possibly through privatisation of selected projects (Arab News March 1997; July 1999), and an NCWCD Wildlife Fund has been created to manage funds separately from the Ministry of Finance (Abdullah 1998).

**Topic 10: Partnerships**

Questions to be addressed:

• What type of partnerships are required, i.e. which tasks and responsibilities should remain with the NCWCD, and which are more appropriately undertaken by partner groups?
• What arrangements should be made with the private sector?
• What arrangements should be made with other government agencies?
• What arrangements should be made with other partners?
• What will NCWCD be responsible for
• How will NCWCD maintain ultimate control over acceptable levels of development and public access, and how will NCWCD regulate the activities of its partners in this regard?

NCWCD departments concerned:

• Planning and Protected Areas

Other Government departments:

• Ministry of Commerce
• Provincial Government

Other linkages:

• Chambers of Commerce

Suggested structures:
The NCWCD is not in the business of running travel arrangements, accommodation, shops and other potential concessions, but should undertake monitoring, research, visitor management in protected areas and public awareness programmes. It will be necessary for the NCWCD to set policy guidelines, and to formulate contracts and possibly legislation to ensure continued control over visitor volumes, activities and associated developments being run by business sector partners. The NCWCD should seek involvement in recent moves to allow regulated international tourism, by gaining approval to sponsor groups for low scale, high quality tourism, preferably in partnership with an established travel firm. This could be extended to NCWCD involvement as a land agent for regional tourism ventures, e.g. cruise ships in the Red Sea, to ensure adherence to ecotourism guidelines. Last, but not least, the NCWCD should be represented in any National Tourism Committee (expected to be formed late in 2000) to provide input into the regulation of environmental impacts of tourism nationally, and to guide national policy with regard to nature-based tourism in general.
APPENDIX  Review of NCWCD Wildlife Protected Areas

Explanatory Notes

These notes explain the type of information compiled for selected headings in the protected area review. Headings considered to be self-explanatory are not listed or annotated here.

Administrative features

Categories = NCWCD designation (after Child and Grainger 1990). Note that some protected areas may have zones that function as separate categories. The IUCN protected area equivalents are given below, for comparison, followed by a brief description of each NCWCD category.

<table>
<thead>
<tr>
<th>NCWCD Category</th>
<th>IUCN Equivalent(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Natural Reserve</td>
<td>I    Strict Nature</td>
</tr>
<tr>
<td>or Managed Natural Reserve</td>
<td>II   National Park</td>
</tr>
<tr>
<td>or Managed Biological Reserve</td>
<td>IV   Nature Conservation Reserve,</td>
</tr>
<tr>
<td>or Managed Resource Use Reserve</td>
<td>IV   Managed Reserve</td>
</tr>
<tr>
<td>Seascapes</td>
<td>V    Protected Landscape or</td>
</tr>
<tr>
<td>Controlled Hunting Reserve</td>
<td>VI   Resource Reserve</td>
</tr>
<tr>
<td></td>
<td>VIII  Multiple Use Management</td>
</tr>
</tbody>
</table>

Definitions

Special Natural Reserves: Prime sites of high biological excellence, constituting the NCWCD’s main areas for the conservation of biological diversity. These areas are open for scientific research, education and strictly regulated outdoor recreation, so long as these are compatible with the main purpose of the reserve. Settlements, livestock and cultivation are usually excluded.

Natural Reserves: Small areas of high natural excellence, or areas of any size of very high biological importance. The management guidelines for NNRs should be similar to those for SNNRs, but with greater freedom of public access.

Biological Reserves: Smaller sites fulfilling a range of conservation functions, including rangeland reclamation, water catchment protection, or protection of local biological communities, e.g. isolated stands of rare trees, mangroves, estuaries, turtle nesting beaches, or vulture breeding colonies. Such sites should be protected from any form of man-related disturbance, except where created for a special purpose, e.g. education or research. BRs would act as an extension of the traditional hema concept.
Resource Use Reserves  Relatively large areas in which the emphasis is on sound resource management and the integration of renewable resource use and wildlife conservation. Each RUR should be subject to a negotiated agreement between primary stakeholders (most commonly local communities) and the Government. Management of resources should be the responsibility of local communities, with input from relevant Government agencies.

Controlled Hunting Reserve  Large areas where the wildlife is managed with the aim of providing improved sustainable hunting at some future point. To be most effective, each CHR should have associated with it one or more fully protected areas to provide sanctuaries for key wildlife populations. CHRs would function as a type of RUR with respect to wildlife and hunting.
Date of creation = year of creation, and of ratification if applicable

BOG = NCWCD Board of Governors

Responsible agency = authorised Government agency (all sites in this review are under NCWCD control at present; in the future however, some forms of management partnership may be possible).

NCWCD = National Commission for Wildlife Conservation and Development

Size and sectors = total area in square kilometres, and the area of defined management zones.

Emirate(s) = national administrative division.

Central co-ordinates = latitude and longitude at the approximate centre of the protected area.

Existing maps = maps of the protected area or wider region.

Management plans = current management planning documents, if available.

Tourism strategy = specific planning for tourism, if available.

Natural Features

Landscape = brief description of topography and distinctive landforms

Climate = summary of rainfall and ambient temperature characteristics.

Water = presence or absence and type, if any, of permanent natural water sources, and

Vegetation = vegetative communities, distribution and relative abundance.

Scenic values = review of overall potential attractiveness of the protected area for visitors.

Key animals = principal mammal and bird species of potential interest to visitors.

Probability of seeing top six key animals = see explanation of rating system

Key sites = important and/or sensitive regions or features within the protected area.

Key seasons = times of the year when natural features may be more vulnerable to disturbance, or when features of potential interest to visitors are most evident or accessible.

Cultural Features
Traditional uses = (former) importance of the area for local communities

Cultural importance = presence of sites or features of important cultural or religious significance

Historical features = presence of sites or features of historical interest.
PA Infrastructure

**Border demarcation** = description of how (or if) borders are marked.

**Rangers and other staff** = numbers of NCWCD personnel assigned to the area.

**Responsibilities of rangers** = principal duties of the NCWCD rangers.

**Ranger chain of command** = self-explanatory.

**Camps and other buildings** = description of buildings and other habitation sites in the area.

**Tracks and roads** = presence of sealed or unsealed vehicle tracks.

**Other facilities** = features such as landing strips for aircraft, lookout points, picnic or camping sites, power generation and fuel supplies, rubbish disposal, and communications, which may be of relevance for the development of a tourism operation.

**Maintenance of facilities** =

**Other patrols** = patrols other than those conducted on the ground by NCWCD rangers.

**Threats to integrity** = current or potential threats to features or security of the area.

Other Stakeholders

**Local community identity** = principal tribes, and approximate proportion of the population that is settled or nomadic, if known.

**Local economic structure** = principal sources of income for local communities, if known.

**Government ministry involvement** = role or influence of other government agencies in protected area management.

Regional Infrastructure

Note: distances are measured from the perimeter of the protected area, unless otherwise stated; often from the nearest access points (tracks or gates). Distances are approximately straight-line, therefore actual travel distances will almost always be longer.

**Nearest petrol and overnight accommodation** = self-explanatory.

**Nearest towns (150 km radius)** = major settlements within ~150km of the perimeter of the protected area, measured to the north, south, east and west.

**Distance to regional centre (Emara)** = in some cases the protected area may be administered within a sub-region, for example the Mahazat as-Sayd protected area lies within the Makkah Emirate, but the nearest regional centre is in the sub-region of Taif.
Nearest national sealed road = any tar-sealed public roads.

Regional tourist attractions = current or potential tourist attractions.

Regional tourism developments = current or planned tourism developments, including regional development which could affect tourist traffic in the vicinity of a given protected area.
Protected Area Al-Khunfah

Administrative features

Category: The area has a core zone designated as a Special Natural Reserve, with the remainder of the area functioning effectively as a Resource Use Reserve.

Date of creation: Declared 1988 (BOG).

Reasons for designation: Protection of a representative area of northern plains and sandstone hills on the edge of the Great Nafud sand desert, and one of the largest populations of sand gazelle in Saudi Arabia.

Responsible agency: NCWCD

Size and sectors: The reserve has a total area of 20,450km² and is divided into six sectors, ranging in size from Al Huj (2,475 km²) in the north, to Al-Assafiyah (4,475 km²) in the south-east. The core SNR sector comprises principally Ghurrub (2,875 km²).

Emirate(s): The reserve is situated in the Tabuk Emirate.

Central co-ordinates: 28° 30.00’N, 38° 30.00’E

Existing maps: The reserve is covered by the following maps:
- Ministry of Petroleum and Mineral Resources 1:2,000,000 (1983).
- Landsat USGS images: 1:500,000; 200 & 204.

Management plans: None

Tourism strategy: None

Natural Features

Landscape: The area comprises gravel plateaux with sandstone outcrops, vegetated wadis and scattered dunes, particularly along the north-eastern border.

Climate: Mean annual rainfall, measured in Al Jouf some 200km to the north, is between 60-70mm, falling in winter and spring. Mean annual ambient temperature is 21.5°C.

Water: The area contains scattered wells, some in the core zone of Ghurrub sector, but mostly in association with the small settlement of Al-Assafiyah in the south-west.

Vegetation: Vegetation is largely confined to the wadis and is typical northern dwarf shrubland, dominated by chenopods, composites and perennial grasses. There are only a few trees of Acacia and Tamarix.

Scenic values: Sandstone hills, incised wadis and the dunes of the Great Nafud provide scenery reminiscent of Jordan’s Wadi Rhum - a popular tourist destination.
Key animals: The following mammals are likely to be present, or have been recorded in Al-Khufah: reem gazelle, wolf (Canis lupus), Rueppell's fox (Vulpes rueppelli), red fox (Vulpes vulpes), sand cat (Felis margarita), wild cat (F. silvestris), ratel (Mellivora capensis), Ethiopian hedgehog (Paraechinus aethiopicus), Wagner's gerbil (G. dasyurus), Sundervall's jird (Meriones crassus), Libyan jird (M. libycus), lesser jerboa (Jaculus jaculus). The area is a potential reintroduction site for Arabian oryx and ostrich.

There is no current bird list for Al-Khunfah.

Probability of seeing top six key animals:
- Reem gazelle: 2
- Sand cat: 4
- Wild cat: 4
- Arabian wolf: 4
- Ratel: 4
- Red/Ruppell's fox: 3

Key sites: The large vegetated wadis, e.g. Wadi Nayyal in northern Ghurrub, are important grazing areas for the gazelles.

Key seasons: Winter and spring is the breeding season for the gazelles.

Cultural Features

Traditional uses: Livestock grazing, particularly camels, and hunting of gazelle.

Cultural importance: None known.

Historical features: Some prehistoric sites, consisting of stone circles, petroglyphs, flint tools, and isolated gazelle traps.

PA Infrastructure

Border demarcation: A ditch a dike system has been constructed along the southern and parts of the western borders to deter illegal entry. In the north-east the reserve is delimited by the start of the deep dunes of the Great Nafud.

Rangers/other staff: The reserve has a complement of between 25 and thirty rangers, including a head ranger and his deputy. There are three mechanics and two cooks based at the main camp, and a cook at each of the other camps.

Responsibilities of rangers: NCWCD rangers primarily undertake patrols of the reserve's boundaries and interior, and secondarily provide supervision of visiting groups, and assistance with broader monitoring and research programmes as required, including liaison with scientific staff and aerial patrols; maintenance of camps and reporting of incidental wildlife sightings; NCWCD rangers are not officially empowered to arrest or detain offenders, nor to confiscate property.

Ranger chain of command: Day-to-day management of rangers camp structures is carried out by the head ranger or his deputy, under authority of NCWCD head office staff in Riyadh.

Camps and other buildings: There are nine camps, at least one of which is partially mobile. The main camp (Bayan), in northern Ghurrub sector, is a large
permanent concrete structure based on the same design as used in Harrat al-Harrah, and has associated with it portacabins and outbuildings to house workshops and labourers. Other camps consist of portacabins and tents.

**Tracks and roads**: The reserve has no sealed roads, but a large graded track runs to the main camp from the Tayma highway.

**Other facilities**: Camps are powered by diesel generators. Water and petrol are trucked in. A graded airstrip is maintained about 5 km from the main camp.

**Maintenance of facilities**: On-site maintenance is the responsibility of the rangers and their support staff of labourers and mechanics, with support from local contractors and NCWCD in Riyadh.

**Other patrols**: The NCWCD Aviation department flies regular patrols over Al-Khufah from their base of operations at Al-Jouf airport, about 200 km to the north.

**Threats to integrity**: Gazelle poaching is a perennial problem.

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**Other Stakeholders**

**Local community identity**: Principal tribes are the Anizah, Billi, Shararat and Shammar; 40-50% of the region's population is nomadic or only semi-settled.

**Local economic structure**: Not known.

**Local communities involvement**: Some local people employed as rangers. Services such as petrol, diesel and food and water supplies obtained locally.

**Government ministry involvement**: None.

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**Regional Infrastructure**

**Nearest petrol supplies**: Al-Assafiyah, 20 km to the east of the main camp.

**Nearest over-night accommodation**: Tayma, 120 km south of the main camp.

**Nearest towns (150 km radius)**: Tayma, Al-Qalibah.

**Distance to regional centre (Emara)**: Tabuk lies <200 km from the main camp.

**Nearest national sealed road**: Tayma highway; 80 km from the main camp.

**Regional tourist attractions**: The towns of Sakaka and Tabuk support seasonal pilgrim traffic and some domestic tourism.

**Regional tourism developments**: Tourist accommodation is being developed in Tabuk and Sakaka.

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**Summary Assessment Notes**
**Scenic and landscape**: Dunes and sandstone formations may have moderate public appeal.

**Wildlife**: Low diversity, low density, and generally cryptic species, although gazelles may be seen.

**Cultural/historical**: Non significant.

**Existing facilities**: Currently inadequate for anything but day visits and self-sustained camping.

**Location and access**: A major graded track provides easy access to the center of the reserve from a major sealed highway.

**Sensitivity / security**: Safe, and resilient site.

**Potential activities**: Day trips to see gazelles on guided drives; possibly overnight camping.

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**Rating**

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

- **Scenery**: 2
- **Wildlife**: 3
- **Cultural/historical**: 3
- **Facilities**: 3
- **Access**: 2
- **Sensitivity**: 1

**Summed Ratings** = 14

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**Ranking**: 8/12

**Category**: Group 2: Low priority for tourism development.
Protected Area At-Tubayq

Administrative features

Category: At-Tubaiq is intended to have zones designated Special Natural Reserve, Resource Use Reserve, and Biological Reserve, but this zonation has not been defined clearly (see below).

Date of creation: Declared 1989 (BOG); ratified 1991 (Council of Ministers)

Reasons for designation: At-Tubaiq was selected for protection because the area contained Saudi Arabia's most northerly resident breeding population of ibex (*Capra ibex*), and is representative of the Saudi Arabian Northern Plain biotope (Child and Grainger 1990).

At-Tubaiq was also recognised as within the historical range of Arabian oryx (*Oryx leucoryx*), cheetah (*Acinonyx jubatus*), ostrich (*Struthio camelus syriacus*), and possibly Arabian leopard (*Panthera pardus nimr*) (Child and Grainger 1990). The area may have once held both reem (*Gazella subgutturosa*) and idmi (*Gazella gazella*), and functioned as part of the extended northern grazing grounds for these species before the area was effectively divided by major highways.

Responsible agency: NCWCD

Size and sectors: At-Tubaiq officially covers an area of 12,200 km² and is not divided into sectors. At-Tubaiq is currently designated as a multiple use site incorporating zones of Special Natural Reserve (~3,000km²), Biological Reserve and Resource Use Reserve (Child and Grainger 1990). This designation allows the provision of tracts of relatively undisturbed land for the conservation of wildlife and for scientific research with access for visitors to the area, as well as assigning zones within which regulated grazing by camels is permitted. These designations is consistent with the management objectives for the reserve, but the different zones need to be more clearly defined. Because low ranger numbers, and the presence of domestic livestock, principally camels, at certain times of the year, the area currently functions as a Resource Use Reserve.

Emirate(s): The reserve is situated in the northern Al Jouf and Al Qurayyat Emirates in the north west of Saudi Arabia, adjacent to north east international boundary with Jordan

Central co-ordinates: 23°30'N, 37°00'E

Existing maps: The reserve is covered by the following maps:
- US Geological Survey (USGS) 1:500,000 Miscellaneous Geologic Investigations Map 1-200 A Wadi As Sirhan Quadrangle.
- Landsat USGS images: 1:500,000 USGS-TR-93-7 GM-2100 Wadi As Sirhan.

Management plans: The only existing, and still current, management plan for the area is Seddon and Khan (1996).

Tourism strategy: There are no visitor facilities in At-Tubayq, nor are there any regular visits by school, public groups or NCWCD head office staff. The area’s designation allows for regulated public access, and the management plan sets out a policy for educational and recreational visits.
Natural Features

Landscape: At-Tubaiq is an eroded sedimentary plateau, demarcated by a low escarpment from a sandy/gravel plain. Steep hills rise to 1055m asl, and the escarpment is deeply incised by wadis. The At-Tubaiq area contains areas of mobile eolian sand in the north-west; intrusions of Al Busayta chert gravels in the north east; and is predominantly composed of Tawils sandstone, with gravel sheets and trains consisting of sandstone and chert.

Climate: Climate of the area is typical of northern steppe desert, tropical and arid. Weather records have not been collected from camps within the reserve, but the most reliable dataset comes from MEPA weather stations that bracket the reserve, in Guraiat, Dowmat al Jandal and Tabuk. Between 1985 and 1993, mean monthly maximum and minimum ambient temperatures in Guraiat ranged from 15.3 to 38.8 and 1.4 to 19.9 degrees centigrade, respectively. Data from the period 1985 to 1993 shows an overall mean annual rainfall of ~50 mm. Substantial rainfall may occurs any time between November and March.

Water: There are no permanent above-ground water sources in At-Tubaiq, though after heavy rains water will run off the escarpment and pools of water will accumulate in depressions and hollows. All water used within the reserve is brought into the camps by truck.

Vegetation: Dwarf shrubs are scattered across the plateau, concentrated in shallow runnels. The hills, escarpments and gravel plains are largely bare of vegetation, except in shallow dry watercourses and sand drifts where there is light cover of perennial grasses. Canyon wadis have the greatest diversity of vegetation, including Acacia trees. A total of over 140 plants species is estimated for the reserve.

Scenic values: Attractive plateau, escarpment and canyon wadi habitats, composed largely of sandstones varying in colour from pale cream to dark red.

Key animals: The following mammals have been recorded in At-Tubaiq: ibex (Capra ibex), wolf (Canis lupus), striped hyena (Hyaena hyaena), Rueppell's fox (Vulpes rueppelli), red fox (Vulpes vulpes). The following mammals may be expected to be present in the reserve: caracal (Felis caracal), sand cat (Felis margarita), wild cat (F. silvestris), ratel (Mellivora capensis), Ethiopian hedgehog (Paraechinus aethiopicus), Indian crested porcupine (Hystrix indica), Cape hare (Lepus capensis), and an assemblage of small mammals. Untended herds of camel (Camelus dromedarius) range freely throughout the outer areas of the reserve. The Asiatic jackal (Canis aureus) has been recorded close to the reserve and may be present at least seasonally (Seddon et al. 1996).

Probability of seeing top six key animals: Nubian ibex 3, Striped hyena 4, Red fox 3, Arabian wolf 4, Ruppell’s fox 3, Lappet-faced vulture 3

Key sites: According the rangers the remaining ibex in the area are largely restricted to a small proportion of the reserve, encompassing certain canyons and sections of the plateau.

Key seasons: Seasonal rutting period in Ibex is mainly in October through to mid-November. Calves are dropped between March to May. Human disturbance
during these period should be minimised, but the possibility of winter and early spring/early summer visits remains.

Cultural Features

Traditional uses: Grazing of livestock, principally camels, and hunting of ibex.

Cultural importance: None known.

Historical features: The reserve contains a number of prehistoric sites, probably dating from Paleolithic times >8-10,000 years before present. Such sites have not been mapped systematically, nor have they been the subject of study or inventory.

Most notably the reserve contains the ruins of Kilwa (derived from the Greek Kellion; refers to a monastic cell) consisting of disintegrated stone structures, some bearing Kufic inscription and a Maltese Cross. The script is believed to date from about A.D. 1000, and the ground is strewn with late Byzantine pottery. Thamudic inscriptions from before A.D. 500 are also present, along with prehistoric petroglyphs of ibex (Horsfeld 1933). This site does not currently have any specific form of protection.

PA Infrastructure

Border demarcation: The strictly protected Special Natural Reserve zone is not clearly defined. The borders of the reserve are delimited by scattered NCWCD sign posts, or patrol tracks.

Rangers/other staff: There are four NCWCD rangers assigned to At-Tubaq, but because of staff leave and other absences, at times the reserve is manned by only a single ranger. The current ranger force is considered understaffed. It has been recommended that a minimum of eight rangers are needed. Both ranger camps have a cook.

Responsibilities of rangers: NCWCD rangers primarily undertake patrols of the reserve's boundaries and interior, concentrating on the prevention of illegal hunting by frequenting those parts of the reserve known to have ibex, i.e. along and on the escarpment.

NCWCD rangers are not officially empowered to arrest or detain offenders, nor to confiscate property. The current protocol of police intervention is often incompatible with apprehension of poachers. The current procedure is for offenders apprehended with a firearm to be taken to Al-Khunfah. Intruders without firearms are escorted out of the reserve on the first offence.

Ranger chain of command: All rangers work under the direct supervision of the Al Khunfah Head Ranger to whom they report daily. Monthly pay is collected at the main camp in Al Khunfah. Day-to-day management of rangers camp structures is carried out by the Al-Khunfah head ranger or his deputy, under authority of NCWCD head office staff in Riyadh.

Camps and other buildings: There are two camps, 6K and 7K. 6K has one small portacabin and two tents; 7K has three tents only.

Tracks and roads: The reserve has no sealed roads. Movement between camps (~41 km) and within the reserve is along unsealed tracks, some marginal and subject to erosion.
Other facilities: The camp at 6K has UHF communication with Riyadh. The two vehicles used in the reserve are equipped with VHF/FM radios for car-to-car and car-to-camp communication. The NCWCD Aviation Department is based in Sakaka, and maintains hangar facilities at the Al Jouf airport, approximately 120 nautical miles south east of the reserve. Two authorised landing areas are maintained in the reserve, at 29°34.00'N, 37°07.10'E, and at 29°21.50'N, 37°32.20'E. These are marked with tyres and supplied with a windsock.

Diesel-powered generators are maintained at each ranger camp. These are required for the running of freezers, lights, radios, air-conditioners etc. There is a petrol tank at each camp. The cost of filling these is borne by NCWCD, and is undertaken from Al Khunfah.

Maintenance of facilities: On-site maintenance is the responsibility of the rangers and their support staff of labourers ad mechanics, with support from local contractors and NCWCD in Riyadh.

Other patrols: There are two Emara camps in the area, each with three to four people. Their main purpose is to patrol the border zone, but they work closely with the NCWCD rangers to assist in general policing of the reserve.

Between three and five Maule single engine aircraft are available in Al Jouf for aerial patrols, but patrolling priority for Harrat al-Harrah and Al Khunfa to the east and the south, respectively, means that aerial patrols over At-Tubaiq are irregular and infrequent.

Threats to integrity: Grazing by domestic livestock, and illegal hunting of ibex.

Other Stakeholders

Local community identity: Principal tribe is the Sharrat; 50-60% of the region’s population is nomadic or only semi-settled.

Local economic structure: Not known.

Local communities involvement: Some local people employed as rangers. Services such as petrol, diesel and food and water supplies obtained locally.

Government ministry involvement: The regional Emara, through the Ministry of Interior, maintains a Frontier Force of border guards in the region.

Regional Infrastructure

Nearest petrol supplies: ~70km, on sealed highway to the south of the reserve.

Nearest over-night accommodation: Al Qalibah, ~100km to the south.

Nearest towns (150 km radius): The nearest towns are Dowmat al Jandal (~150+km) to the east, and Al Qalibah (~100km) to the south west, and Tabuk (120km) to the west.

Distance to regional centre (Emara): Sakaka (Al Jouf Emirate), ~300 km to the east.
Nearest national sealed road: The nearest sealed road is 65 km and 107 km to the south of 6K and 7K, respectively.

Regional tourist attractions: Tabuk and the Al Jouf region attract visitors, while pilgrim traffic from Jordan, Syria and countries further north and north-east, travel south to Makkah via Tabuk and Al Jouf.

Regional tourism developments: The Tabuk/Al Jouf region is actively trying to increase facilities (hotels, transport etc) and attractions (e.g. historical sites) for visitors.

Summary Assessment Notes

Scenic and landscape: Attractive escarpment, jibal and canyon rock landforms.

Wildlife: Nubian ibex may be seen by some visitors, but ibex and other wildlife apparently at low densities.

Cultural/historical: Pre-historic sites and petraglyphs of ibex able to be viewed. Early Christain religious structures of potential interest if central Government authorities are amenable to facilitating appropriate access and interpretation.

Existing facilities: Unsuitable for any commercial-scale visits.

Location and access: Relatively difficult access over rough tracks.

Sensitivity / security: Restrictions on movements in the border area with Jordan may limit public access.

Potential activities: Circuit drives and guided tours to view ibex and archaeological sites. Picnic and camping in canyons or on the plateau.

Rating

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

Scenery: 2
Wildlife: 3
Cultural/historical: 3
Facilities: 4
Access: 3
Sensitivity: 4

Summed Ratings = 19

Ranking 11/12
Category long-term.  Group 3: Unsuitable for tourism development in the medium to
**Protected Area**

**Farasan Islands**

### Administrative features

<table>
<thead>
<tr>
<th>Category</th>
<th>Zones of Special Natural Reserve, Natural Reserve, Resource Use Reserve, and Controlled Hunting Reserve, covering both terrestrial and marine habitats.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of creation</td>
<td>Declared 1990 (BOG); not yet ratified by Council of Ministers.</td>
</tr>
<tr>
<td>Reasons for designation</td>
<td>The islands contain a large population of idmi gazelle of mainland origin, high concentrations of nesting seabirds, and turtle nesting beaches, along with outstanding coral reef habitats and wildlife, and important mangrove communities.</td>
</tr>
<tr>
<td>Responsible agency</td>
<td>NCWCD, but the archipelago is under the authority of the Armed Forces, and administered by the Coast Guard.</td>
</tr>
<tr>
<td>Size and sectors</td>
<td>Zones are not clearly defined. Terrestrial reserve areas planned to cover approximately 620 km², including the two main islands, Farasan Kebir (60km x 2-8km; 381 km²) and As-Saqid (27km x ~5km; 149km²). The marine protected area proposed in 1994 would encompass the main islands of the group, and extend the total area of protection out to 100m beyond the reef.</td>
</tr>
<tr>
<td>Emirate(s)</td>
<td>The reserve is situated in the Jizan Emirate, and is situated in the southern Red Sea approximately 90km west of the coastal town of Jizan.</td>
</tr>
<tr>
<td>Central co-ordinates</td>
<td>17° 00'N, 42° 00'E</td>
</tr>
<tr>
<td>Existing maps</td>
<td>The reserve is covered by the following maps:</td>
</tr>
<tr>
<td></td>
<td>- US Geological Survey (USGS) 1:500,000 Miscellaneous Geologic Investigations Maps:</td>
</tr>
<tr>
<td></td>
<td>- Landsat USGS images: 1:500,000.</td>
</tr>
<tr>
<td></td>
<td>- NCWCD map:</td>
</tr>
<tr>
<td>Management plans</td>
<td>The first management plan for Farasan was drawn up by R. Fisher in 1988. The area was summarised in Child and Grainger (1990), and the management of the extended marine protected area was set out in detail in Gladstone (1994 a &amp; b). A major master plan for conservation and the development of eco-tourism in the Farasan Islands was completed by Ady et al. in 1995. In 1999 a submission was prepared for UNESCO to consider the Farasan Archipelago for World Heritage status.</td>
</tr>
<tr>
<td>Tourism strategy</td>
<td>Initial plans for the islands concentrated on regulating use of natural resources and limiting impacts on other wildlife and habitats. More recently, particularly Ady et al. (1995), the potential value of Farasan as a site for the development of eco-tourism has been explicitly considered. The plans and proposals drawn up in 1995 have however, not resulted in any structured tourism development by the NCWCD. With access strictly controlled by military authorities it is unlikely that private tourism operators will be free to proceed with unregulated development, but the NCWCD is aware of the need to direct and control any such development. At present there is a minor influx of tourists during the two-week winter vacation period.</td>
</tr>
</tbody>
</table>
Natural Features

Landscape: The Farasan Archipelago consists of some 176 low-lying islands and islets in the southern Red Sea, composed of uplifted ancient coral reef. Leaching of the underlying salt substratum has resulted in slumping of the overhanging corals in some areas, forming erosion gulleys within which silty clay soils have been deposited.

Climate: The climate is arid and sub-tropical, characterised by high mean annual temperatures (>30°C) and low annual rainfall (<100 mm). Most rain falls in October and in January and May, due to the Indian Ocean monsoon. Winds can be constant and strong, with periods of calm possible in late spring and autumn.

Water: The islands have a scanty supply of groundwater derived from rainfall, and accessed through a series of shallow wells. In 1980 a desalination plant was installed to meet the water needs of the growing population in Farasan town; this was supplemented by a later plant to service the port area.

Vegetation: The northwestern plateau and the westward facing shores are exposed to the strong prevailing winds and almost devoid of vegetation. Dwarf shrubland is most diverse and abundant in the deep ravines which cut through rugged and inaccessible areas of fossil coral. In the larger wadi beds there are trees and shrubs including Commiphora gileadensis, Ziziphus spina-christi and Maerua oblongifolia. There are two groves of Acacia ehrenbergiana woodland on the largest island, Farasan Kabir. Two species of mangroves Rhizophora mucronata and Avicennia marina grow on the muddy coastal flats. Salt flats (sabkhas) support a succulent dwarf shrub community dominated by Limonium spp.

Scenic values: Despite the uniformly low contours (less than 20 msal), the sparse vegetation, undercut coral cliffs, and areas of white sand beach combine with the sometimes startling blue of the seas to provide a classic ‘desert-island’ appeal.

Key animals: The key mammal species on Farasan is a subspecies of idmi gazelle (Gazella gazella farasani), derived from the mainland population, but with some distinct phenotypic differences. Latest estimates put the total population at around 800, distributed over four islands. Feral cats, rats and the white-tailed mongoose (Ichneumen albicauda albicauda) are the most common terrestrial mammals. Marine mammals include dugongs, five species of dolphin, and one species of whale, Bryde’s whale (Balaenoptera edeni). Green, Hawksbill and Leatherback turtles have been recorded. The current bird list for Farasan currently contains 145 species, the majority being seabirds and shorebirds, including Goliath heron, pink-backed pelican, spoonbill, osprey, crab plover and greater flamingo. The globally threatened white-eyed gull is endemic to the Red Sea. About 65 pairs of Egyptian vultures breed on the islands.

Probability of seeing top six key animals:
- Reef fishes: 1
- Shorebirds/Seabirds: 1
- Idmi gazelle: 2
- Dolphins/Turtles: 3
- Osprey/Egyptian vulture: 2
- Whale/dugong: 4

Key sites: Sensitive areas comprise the following types of sites: nesting areas for seabirds and turtles, high density areas of gazelles, mangrove communities, key fish nursery sites, dugong habitats, and osprey nesting areas.

Key seasons: Human disturbance should be minimised during the nesting periods for birds and turtles. In general, because the climate can be un pleasingly hot
and humid in summer, spring - winter visits would be more practical, when the weather remains warm but tolerable, and the winds may abate.

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**Cultural Features**

**Traditional uses**: Artisanal fishing was the main traditional use of the islands, and fish continue to be the islands’ mainstay, although large-scale commercial interests are starting to displace traditional fishing structures. Formerly all fishing was done by lone fishermen who went out in small boats and fished using net or hand line for between one day and one week. Apart from using motorised boats and preserving fish on ice rather than by drying, these traditional fishing operations continue, regulated by six traditional fishing chiefs who act as arbitrators and who allocate fishing grounds.

**Cultural importance**: Apart from fishing, pearling was once a dominant industry in the islands. A paucity of high quality pearls and the rigours of the work mean that the tradition is dying out.

**Historical features**: The islands have been occupied by people for several millennia, with evidence of the South Arabian civilisation from 1500-3000 years ago. Farasan Kebir holds a number of ruins and prehistoric sites, with dry-stone structures, pottery, shell mounds, and obsidian and copper artefacts. Abandoned villages and old graveyards are present on a number of islands in the archipelago. Near Farasan town stands a coral block fort dating from the time of the Ottoman occupation some 100 years previously.

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**PA Infrastructure**

**Border demarcation**: Borders of the different zones are not clearly defined. Currently the marine reserve boundaries follow underwater contours.

**Rangers/other staff**: There are five rangers and one cook based on Farasan Kebir.

**Responsibilities of rangers**: NCWCD rangers primarily undertake patrols of gazelle areas on the main island of Farasan Kebir, and secondarily provide assistance with broader monitoring and research programmes as required, including liaison with scientific staff; maintenance of camps and reporting of incidental wildlife sightings.; NCWCD rangers are not officially empowered to arrest or detain offenders, nor to confiscate property.

**Ranger chain of command**: Day-to-day management of rangers camp structures is carried out by the head ranger or his deputy, under authority of NCWCD head office staff in Riyadh. The research camp/guest house at Farasan port is maintained by the Coast Guard, which retains ultimate authority over the region of the ranger station.

**Camps and other buildings**: The rangers are based within the old engineers housing compound in the port area of Farasan Kebir, occupying prefabricated houses used originally during the construction of the port. The wider compound includes family housing for Coast Guard staff. A Guest House/ Researcher Camp is available in one of the buildings for short duration visits. The NCWCD is currently negotiating with the Coast Guard for the use of other buildings.
Tracks and roads: Good quality sealed roads run to all major settlement areas on Farasan Kebir and As-Seqid. Unsealed and sometimes rough tracks provide access to other sites, across jagged corals or sandy bays.

Other facilities: Farasan Kebir is reached from the mainland by a daily car and passenger ferry. This service is free, but booking are necessary to transport vehicles as the ferry capacity is around 20 cars or light trucks. The ferry runs each day, except Wednesday, but apparently only one way each day. The ferry trip takes 3 hours; private water-taxis are available for a one hour trip. Farasan town has a respectable collection of shops providing all basic needs. The town has a single 2-star equivalent hotel.

Maintenance of facilities: On-site maintenance of NCWCD structure and equipment is the responsibility of the rangers and their support staff, with support from local contractors and NCWCD in Riyadh.

Other patrols: Marine patrols and regular visits to other islands should be an essential part of any future monitoring of the extended marine reserve, but none operate at present.

Threats to integrity: Expansion of commercial fishing interests threaten key fish species and the future of traditional artisanal fishing. Gazelles are vulnerable to hunting or collecting parties from the mainland, while seabirds, nesting turtles and dugong are sensitive to any forms of development. Coastal development would threaten the mangroves communities and the integrity of the coral reefs.

Other Stakeholders

Local community identity: The present population numbers around 5,000, over 2,000 of whom live in and around Farasan town, and are of Tihami, Yemeni and east African origin.

Local economic structure: Fishing remains the principle source of livelihood for the residents of the islands, either as foreign employees of the Saudi Fishing Company, or as small-scale artisanal operations by locals. Pearling is no longer of great economic significance. Some farming and grazing of domestic livestock persists, but is relatively insignificant. Many people on the islands are employed by or service the military presence, with around 300 Coast Guard personnel.

Local communities involvement: Services such as petrol, diesel and food and water supplies obtained locally.

Government ministry involvement: The ministries of Interior and Defence have authority over the islands, concerned primarily with maintenance of a military presence in this Red Sea frontier region, and in controlling smuggling and illegal immigrants.

Regional Infrastructure

Nearest petrol supplies: Farasan town, less than 15km from the port.

Nearest over-night accommodation: Farasan town.
Nearest towns (150 km radius): Farasan town on the island, with the mainland towns of Jizan (90km east), Abu Arish (~30km east of Jizan), and Sabay (~30km north-east of Jizan).

Distance to regional centre (Emara): Jizan (90 km east).

Nearest national sealed road: Sealed roads on Farasan Kebir and As-Seqid.

Regional tourist attractions: Tihama coastal plain, and mountain resort town of Abha.

Regional tourism developments: None known.

Summary Assessment Notes

Scenic and landscape: Exceptional coastal and marine landscapes.

Wildlife: Marine life readily viewed using only basic equipment; seabirds and shorebirds relatively abundant, and a high probability of viewing gazelles. Nesting turtles could also be an attraction.

Cultural/historical: Pearling (although limited) and artisanal fishing still practised, offering a glimpse of traditional lifestyles.

Existing facilities: Settlement areas, specifically Farasan town, provide adequate accommodation and other facilities, although dedicated structures may be required if the tourist volume is to expand.

Location and access: Readily accessible via daily ferry from Jizan, although the service is not comprehensive and more than one sailing daily would be desirable in peak months.

Sensitivity / security: Safe for visitors, and most site relatively resilient to responsible tourism, although key areas such as coral reefs and nesting sites for birds and turtles would require careful regulation of human access and activities.

Potential activities: Diving, swimming, fishing, guided tours, camp and picnic sites, development of a visitor centre, land and sea tours to dive and to view gazelles, seabirds and nesting turtles.

Rating

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

<table>
<thead>
<tr>
<th>Category</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scenery</td>
<td>1</td>
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<tr>
<td>Wildlife</td>
<td>1</td>
</tr>
<tr>
<td>Cultural/historical</td>
<td>2</td>
</tr>
<tr>
<td>Facilities</td>
<td>1</td>
</tr>
<tr>
<td>Access</td>
<td>2</td>
</tr>
</tbody>
</table>
Sensitivity : 2
Summed Ratings = 9

Ranking 1=12
Category Group 1: High priority for tourism development.
### Protected Area

<table>
<thead>
<tr>
<th><strong>Harrat al-Harrah</strong></th>
</tr>
</thead>
</table>

#### Administrative features

<table>
<thead>
<tr>
<th><strong>Category</strong></th>
<th>Special Natural Reserve</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Date of creation</strong></td>
<td>Declared 1987 (BOG); ratified 1989 (Council of Ministers)</td>
</tr>
</tbody>
</table>

**Reasons for designation**: Chosen to be one the NCWCD’s first reserves because the area contained resident breeding populations of reem (*Gazella subgutturosa*) and idmi (*Gazella gazella*) gazelle (Child and Grainger 1990), and possibly the last breeding population of houbara bustards in Saudi Arabia (Seddon et al. 1995). In addition the reserve is representative of a major Saudi Arabian biotope, the harrat, or basalt lava field.

The area was also recognised as a potential reintroduction site for Arabian oryx (*Oryx leucoryx*), Nubian ibex (*Capra ibex*), and cheetah (*Acinonyx jubatus*), and wildlife substitutes such as red-necked ostrich (*Struthio camelus*) (Child and Grainger 1990).

**Responsible agency**: NCWCD

**Size and sectors**: Divided into four sectors: Al Qaidat (1,625 km²), an unpatrolled no-hunting zone; and Liss (3,650 km²), Tawqah (4,125 km²) and Ma’arik (4,375 km²). Harrat al Harrah therefore officially covers an area of 13,775 km², with 12,150 km² under strict protection.

**Emirate(s)**: The reserve is situated in the Northern Frontier, Al Jouf and Al Qurayyat Emirates in the north west of Saudi Arabia, but is administered from the Al Jouf Emirate.

**Central co-ordinates**: 33°55'N, 38°50'E

**Existing maps**: The reserve is covered by the following maps:

- Landsat USGS images: 1:500,000 USGS-TR-93-7 GM-2100 Wadi As Sirhan and GM-201 Jawf Sakakah.

**Management plans**: The Harrat al-Harrah Master Management Plan was drawn up in November 1996 (Seddon and Al-Qatani 1996), and formed the basis for a consultant report and work plan for the area in 1997 (Ferrar 1997).

**Tourism strategy**: Existing policy provides the opportunity for visits to the reserve by interested parties. There are no permanent visitor facilities in Harrat al-Harrah, nor are there any regular visits by school or public groups, however private applications to visit Harrat al-Harrah can be made with the consent of the NCWCD. Although the reserve also contains healthy populations of houbara and of reem gazelle, these animals are not always easily seen, they could however, be an additional draw card for environmental education visits.

*Faga’* collection each spring currently takes place without permit. The very large numbers of people that enter the reserve illegally in search of *faga’* means that the reduced ranger force is unable to monitor all intruders. Ideally, entry should be permitted for the collection of *faga’*, but such entry should be closely regulated. A system of vehicle registration and permits issued for one or two days could be
associated with environmental education programmes to provide an immediate benefit to people in the surrounding districts (Seddon and van Heezik 1995).

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**Natural Features**

**Landscape**: Harrat al-Harrah encompasses the largest of Saudi Arabia's olivine basalt lava fields, and is itself the southern portion of a 99,000 km² lava field that extends northwards into Jordan and Syria. There is a gentle increase in altitude from south (~700 m asl) to north (~800 m asl). The area is dotted with extinct volcanic cones (makman), rugged basalt outcrops (jabals) and large silty depressions (qah), and cut by numerous large wadis and smaller washes (shaib). Harrat al-Harrah's basalt rock fields, jabals and makmans were created by volcanic activity several hundred thousand years ago. Lava flows covered large areas of limestones. Weathering of these lava sheets has broken the basalt into rocks and boulders. Limestone gravel plains and undulating hills predominate along the eastern edge of the area. In the central southern region moderate areas of sand are more common. Basalt predominates elsewhere, with the largest jabals in the western third. The reserve is surrounded by undulating plains of chert and gravels virtually devoid of vegetation.

**Climate**: Climate of the area is typical of northern steppe desert, tropical and arid. Weather records have been collected intermittently from camps within the reserve, but the most reliable data set comes from MEPA weather stations in Turairf, Ar’ar and Al Jouf. Comparisons with data recorded within the reserve suggest that records from Turairf most closely reflect conditions in Harrat al-Harrah. Between 1990 and 1993, mean monthly maximum and minimum ambient temperatures in Turairf ranged from 12.7 to 37.0 and 1.1 to 19.9 degrees centigrade, respectively. Data from the period 1985 to 1993 shows an overall mean annual rainfall of ~80 mm. Substantial rainfall may occur any time between November and March, but is patchily distributed across the reserve.

**Water**: There are no permanent above-ground water sources in Harrat al-Harrah, though after heavy rains pools of water will accumulate in depressions and hollows and may persist for up to several weeks. Three wells, with water approximately four metres below the surface, once existed in the western Liss sector, but these no longer function.

**Vegetation**: Harrat al-Harrah contains plant communities typical of desert harrat habitats. A total of around 245 species of plants has been identified (Ghazanfar et al. 1998). In general the reserve has sparse patchy dwarf shrub vegetation, concentrated in small drainage lines, wadis and silty depressions. There are no trees, except for the occasional *Tamarix arboarea* along large stream beds. Dominant perennial shrubs include *Haloxylon salicornicum*, *Salsola* spp., *Artemisia* spp., *Achillea fragrantissima*, *Astragalus* spp. and *Zilla spinosa*. *Capparis spinosa* is abundant on the margins of silty depressions. Perennial grasses are sparsely distributed and poorly represented, probably due to intensive camel grazing in some areas (van Heezik and Seddon 1995). Chert/gravel plains and basalt slopes support few perennial plants. In years with good winter and spring rainfall there is a flush of annuals in all habitats.

Of particular interest in relation to public use of the reserve is the growth in spring of the edible fungus *Terfezia claveryi*, known as *faga’* in Arabic. Growing under the soil surface in association with *Helianthemum lippii* in harrat areas, *faga’* is a local delicacy and is sort after by people from surrounding districts.

**Scenic values**: True, treeless, steppe, the protected area has a Mars-like appearance with its own stark beauty. It lacks however, truly dramatic scenery, with only low hill structures, no dune lands and no permanent water. In years of good rainfall the spring flush of annual flowers rivals the displays of Namaqua land and the
eastern Cape in southern Africa. It is silent, huge and empty - attributes that may not appeal to a broad cross-section of the general public.

**Key animals**

The following mammals have been recorded in Harrat al-Harrah (Seddon et al. 1997): reem and idmi gazelle, wolf (*Canis lupus*), striped hyena (*Hyaena hyaena*), Rueppell's fox (*Vulpes rueppelli*), red fox (*Vulpes vulpes*), caracal (*Felis caracal*), sand cat (*Felis margarita*), wild cat (*F. silvestris*), ratel (*Mellivora capensis*), Ethiopian hedgehog (*Paraechinus aethiopicus*), Indian crested porcupine (*Hystrix indica*), Cape hare, Cheesman's gerbil (*Gerbillus cheesmani*), Baluchistan gerbil (*G. nanus*), Wagner's gerbil (*G. dasyurus*), Sundervall's jird (*Meriones crassus*), Libyan jird (*M. libycus*), lesser jerboa (*Jaculus jaculus*), and Hemprich's long-eared bat (*Otonycteris hemprichi*).

Untended herds of camel (*Camelus dromedarius*) range freely throughout the reserve. Dogs (*Canis lupus familiaris*) and feral cats (*F. silvestris*) may also be found in the reserve occasionally.

The Asiatic jackal (*Canis aureus*), and the marbled polecat (*Vormela peregusna*) (Nader 1991) have been recorded close to, but outside the reserve's borders, and therefore may be present at least seasonally in some parts of the reserve (Seddon et al. 1996).

The current bird list for Harrat al-Harrah contains 130 species, including a large diversity of migrants, notably raptors, but also waterbirds which utilise ephemeral water pools after heavy rainfall. Harrat al-Harrah is both a breeding ground (Green 1984, Symens 1988) and a winter refuge for houbara bustards, and an important breeding area for a large species assemblage of larks and wheatears. Red-necked ostriches (*Struthio camelus camelus*) were once present in Harrat al-Harrah; fragments of ostrich eggshell may be found throughout the reserve (P. Seddon, pers. obs.).

**Probability of seeing top six key animals**

- Reem gazelle: 2
- Idmi gazelle: 4
- Houbara bustard: 3
- Arabian wolf: 4
- Striped hyena: 4
- Red/Ruppell's fox: 3

**Key sites**

Houbara bustards are concentrated in eastern sectors; wolves and hyenas more prevalent in rocky hill areas; faga' grows on open harrat boulder fields; pre-historic sites throughout.

**Key seasons**

Late winter - spring (December to April), when gazelles and houbara bustards are breeding; there is a flush of spring annuals, and faga' may grow.

**Cultural Features**

**Traditional uses**

Seasonal grazing lands for camels, and latterly sheep and goats; hunting of gazelles and falconry for houbara bustards, principally during winter and spring; spring collection of faga' after good winter rainfall.

**Cultural importance**

None known beyond seasonal use of natural resources.

**Historical features**

Numerous and extensive pre-historic sites, comprising stone habitation circles; gazelle traps; mounds (burial?), dam works, and keys, and thousands of stone tool sites, probably dating back to 10,000 years BP.
PA Infrastructure

Border demarcation: Until 1998 the border was marked by a series of irregularly spaced white barrels. From 1998 a ditch/dike system was constructed along the southern, eastern and parts of the northern boundaries, effectively channelling all ground traffic via ranger camps.

Rangers/other staff: Between 25 and 30 rangers. All ranger camps have a cook with two normally at the main camp; total nine cooks. Two mechanics are based full-time at the main camp and are responsible for servicing of all vehicles and generators in the reserve.

Responsibilities of rangers: NCWCD rangers primarily undertake patrols of the reserve's boundaries and interior, and secondarily provide supervision of visiting groups, and assistance with broader monitoring and research programmes as required, including liaison with scientific staff and aerial patrols; maintenance of camps and reporting of incidental wildlife sightings. NCWCD rangers are not officially empowered to arrest or detain offenders, nor to confiscate property.

Ranger chain of command: Day-to-day management of rangers camp structures is carried out by the head ranger or his deputy, under authority of NCWCD head office staff in Riyadh. The research camp at Shamma is maintained by NWRC, with assistance from the rangers.

Camps and other buildings: Buildings in Harrat al-Harrah are used for housing staff, for administration and for maintenance and research. There are three permanent buildings in the reserve, all at Nimr: the main ranger station, Head Ranger family housing, and a workshop. There are ten camps in total: new Nimr, old Nimr, Liss, Abusada, Gilta, Rushaydah, Thayat, Hadran, Erronibayat, and Shamma. New Nimr, Thayat and Liss have permanent structures; all other camps consist of portabins and tents. Old Nimr has been abandoned and is in poor repair.

Tracks and roads: The reserve has no sealed roads. Movement between camps is primarily along major unsealed tracks which run around the periphery of the reserve, avoiding the rocky areas within. Movement within the reserve is along unsealed tracks, some marginal and subject to erosion and washout. Main highways linking the towns of Turaif with Qurayyat, Dowmat and Sakaka run around the north, west and south sides of the reserve, within 60 to 120 km of the reserve's borders.

Other facilities: Diesel-powered generators are maintained at each ranger camp. These are required for the running of freezers, lights, computers, repeaters, radios, air-conditioners etc. The research camp at Makman Shamma has no generator, but runs basic lights from batteries charged by solar panels; other power is provided by butane gas. There is a petrol tank at each camp, and water is brought in by tanker from nearby wells outside the reserve.

Six authorised landing areas are maintained at camps in the reserve (see Appendix), at both new and old Nimr, Liss, Gilta, Erronibayat and Shamma. These are marked with tyres and supplied with a windsock. A number of alternative landing sites are available to experienced pilots authorised to use them if necessary; these are generally on the large dry lakes throughout the area. In 1997 petrol tanks at selected sites within the reserve to allow extended survey flights.

Maintenance of facilities: On-site maintenance is the responsibility of the rangers and their support staff of labourers ad mechanics, with support from local contractors and NCWCD in Riyadh.
**Other patrols**

The NCWCD Aviation Department is based in Sakaka, and maintains hangar facilities at the Al Jouf airport, approximately 80 nautical miles south of the reserve. Between three and five Maule single engine aircraft are available for aerial patrols over Harrat al-Harrah, and Al Khunfa to the south. The Aviation Department undertakes aerial patrols for intruders, facilitation of communication between rangers, transport of NCWCD personnel, wildlife surveys and radio-telemetry, and general support of ground-based field operations.

**Threats to integrity**

Oil and phosphate deposits have been located beneath central areas of the protected area, and a proposal to mine phosphate has been submitted to central government. Intermittent, but sometimes large-scale intrusions by faga’ collectors and herdsmen, prior to 1998 when the area’s boundaries were not protected by a dike.

**Other Stakeholders**

**Local community identity**

Principal tribes are Rawalah, Anizah, Shararat and Shammar; approximately 50-60% of the region’s population is nomadic or only semi-settled. Northern region characterised by low population densities; approximately <1 person per km².

**Local economic structure**

Not known.

**Local communities involvement**

Some local people employed as rangers. Services such as petrol, diesel and food and water supplies obtained locally.

**Government ministry involvement**

Oil deposit mapping, and proposed phosphate extraction by Ministry of Petroleum and Mineral Resources.
Regional Infrastructure

**Nearest petrol supplies**: North: unnamed petrol station on Ar’ar-Turaif highway (40 km); East: Abu Ajram (80 km); South: Nabk Abu Qasr (20 km); West: Tubarjal (40 km).

**Nearest over-night accommodation**: North: Turaif (40 km); South and East: Dowmat al Jandal (120 km); West: Al Qurayyat (100 km).

**Nearest towns (150 km radius)**: Turaif; Qurayyat; Dowmat al Jandal; Sakaka.

**Distance to regional centre (Emara)**: Sakaka: 140 km from southern camp.

**Nearest national sealed road**: Turaif-Ar’ar highway: 60-80 km from northern camps.

**Regional tourist attractions**: Historic (early Islamic and Nabatean) and pre-historic sites in the vicinities of the towns of Dowmat al Jandal and Sakaka.

**Regional tourism developments**: The Al Nusl Hotel in Sakaka runs weekend tours in conjunction with the national air carrier, Saudia Airlines, the focus of which is the historical sites around Sakaka and Dowmat al Jandal.

Summary Assessment

**Scenic and landscape**: Starkness and isolation does not have wide public appeal.

**Wildlife**: Low diversity, at low density, and generally extremely unapproachable.

**Cultural/historical**: Seasonal collection of faga’ has been an important traditional use; high density of pre-historic sites provides a specialised interest.

**Existing facilities**: Inadequate for anything other than day visits or self-contained camping.

**Location and access**: Access to central areas requires 4WD journey of up to 150 km one-way from nearest sealed roads.

**Sensitivity / security**: Safe socio-politically; landscape and natural features very resilient to moderate human presence.

**Potential activities**: Day trips or supervised overnight camping during winter and spring, associated with visits to selected pre-historic sites, and/or regulated collection of faga. Wildlife sightings would be a bonus, but not a selling point.

Rating

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

**Scenery**: 3

**Wildlife**: 3
Cultural/historical : 3
Facilities : 3
Access : 3
Sensitivity : 1

Summed Ratings = 16

Ranking 9/12
Category Group 2: Low priority for tourism development.

Protected Area Ibex Reserve

Administrative features

Category : Resource Use Reserve/Special Natural Reserve.
Date of creation : Declared 1988 (BOG); ratified (Council of Ministers)
Reasons for designation : The reserve contains the largest wild population of Nubian ibex (Capra ibex) in Saudi Arabia, and the only known population of ibex in the Tuwayq and central Najd region.
Responsible agency : NCWCD
Size and sectors : The reserve covers approximately 2,500 km² but the boundaries of the area are not clearly defined. The reserve is divided into two distinct zones: an area of greater protection (SNR) in the upper sections of some wadis and on the plateau, where grazing livestock is totally excluded; and an area in the lower wadis where camel grazing is permitted (RUR).
Emirate(s) : The reserve is situated in the Riyadh Emirate, about 150 km south of Riyadh, on the east side of the Tuwayq escarpment.
Central co-ordinates : 23° 30'N, 46° 00'E
Existing maps : The reserve is covered by the following maps:
- Series 1:50,000 P, Edition 1-SA-ASD, Sheets 4623 -43, -42, -13, -12, -34, -31, -24, -21, -33, -32, -23, -22. These maps were prepared from aerial photographs taken in 1975.
Management plans : The first, provisional management plan for the Ibex Reserve was set out in Child and Grainger (1990: Appendix IV). A draft five-year management plan was drawn up in 1993 (Williamson and Dunham 1993), but was superseded by the Ibex Reserve Master Management Plan two years later (Anon. 1995).
Tourism strategy : At present the reserve has no visitor facilities and no programme to attract visitors to see ibex and reintroduced gazelles. The reserve's
designation as a resource use/natural reserve specifically encourages responsible public access. In theory visits to the reserve are possible with prior agreement from the NCWCD. In practise, picnic and overnight camping is popular with local people, particularly during winter.

Natural Features

Landscape : The Tuwayq escarpment forms the western boundary of the reserve, which rises to the eastern plateau at about 700m to 1200 m asl. The escarpment is composed of limestone deposits, and is cut by several major wadis, forming steep-sided canyons.

Climate : Two seasons may be distinguished: a hot, dry summer in May to August, with mean maximum temperatures over 40oC; and a cool winter with around 50mm of rainfall.

Water : The wadis are prone to flash flooding following heavy rain, and water pools may persist for several weeks. There is one perennial spring in Wadi Ghaba, and water seeps are present in wadis Ghaba, Ghafar and Rahal. A borehole and a small center-pivot irrigation system is maintained in conjunction with farms in Wadi Bodhan. Otherwise water for camels and other animals is brought in by truck.

Vegetation : The plateau is largely devoid of vegetation, apart from a few perennial shrubs and grasses in shallow depressions and drainage lines. Vegetation is relatively abundant in the canyon wadis, particularly in the those areas protected from livestock grazing. Rainfall run-off from the plateau and escarpment supports a number of perennial species in the wadi bottoms, including Haloxylon, Capparis, Salsola, Panicum, and Stipagrostis.

Scenic values : Steep canyons, vegetated wadis, and views from the broad open plateau offer an example of the superb scenery typical of the Tuwayq Escarpment.

Key animals : The following mammals have been recorded in the reserve: Nubian ibex (250 animals), reintroduced idmi gazelle (200+ animals), wolf (Canis lupus), red fox (Vulpes vulpes) wild cat (Felis sylvestris) Cape hare (Lepus capensis), and rock hyrax (Procavia capensis). Feral dogs, sheep, goats and up to 1200 domestic camels are also present in the reserve. The current bird list for the Ibex Reserve contains around 50 species.

Probability of seeing top six key animals :

- Nubian ibex 2
- Idmi gazelle 2
- Red fox 3
- Rock hyrax 3
- Arabian wolf 4
- Wild cat/Cape hare 4

Key sites : The fenced wadi heads are designated as SNR sites to provide a core area without human disturbance to wildlife.

Key seasons : Idmi gazelle may drop calves in any month of the year, with peaks in February to April, and August-September. Ibex rut takes place in October-November, with calving in April. This suggests that human disturbance should be reduced around April and September-October.
Cultural Features

Traditional uses: The area has long been used for the grazing of camels, and more recently sheep and goats by local communities. Small-scale hunting and capture of ibex was a traditional activity in the surrounding region.

Cultural importance: The persistence of the ibex population in the Hawtah Bani Tamim area is largely due to the efforts of the local people to protect and conserve them. The area has long functioned as a hema, a traditional form of protected area, which in this case prevented the unregulated hunting of ibex by outside groups.

Historical features: No inventory of historic features has been undertaken, but the area holds some evidence of prehistoric occupation, and contains a number of burial mounds of unknown age.

PA Infrastructure

Border demarcation: The boundaries of the wider reserve are not clearly defined, but are roughly demarcated by the escarpment and by sealed roads on three sides are the area. The SNR zones are divided by fences across selected wadi heads, although some of these have been destroyed, after being erected without consultation with local communities.

Rangers/other staff: There are 12 rangers and four support staff assigned to the reserve. Scientific studies are undertaken during short visits by researchers based at the King Khaled Wildlife Research Center, near Riyadh.

Responsibilities of rangers: NCWCD rangers primarily undertake patrols of the reserve's boundaries and interior, and secondarily provide some assistance with broader monitoring and research programmes as required, including liaison with scientific staff; maintenance of camps and reporting of incidental wildlife sightings; NCWCD rangers are not officially empowered to arrest or detain offenders, nor to confiscate property.

Ranger chain of command: Day-to-day management of rangers camp structures is carried out by the head ranger or his deputy, under authority of NCWCD head office staff in Riyadh.

Camps and other buildings: There are ranger camps situated in wadis Matham, Rahal, Bodhan, and Hariq. The reserve also contains two family farms in the lower stretches of Wadi Bodhan.

Tracks and roads: Although surrounded on three sides by tar roads, the reserve itself has no sealed roads, only a network of unsealed tracks providing access to the major wadis.

Other facilities: Electricity is supplied to the ranger camps by generators; communication between camps is by radio.

Maintenance of facilities: On-site maintenance is the responsibility of the rangers and their support staff of labourers ad mechanics, with support from local contractors and NCWCD in Riyadh.

Other patrols: None.
Threats to integrity: Encroachment by domestic livestock into the SNR zones reduces the available forage for wildlife, while grazing in the RUR zone is uncontrolled. The erection of poorly-sited fences to exclude livestock has resulted in some antagonism from local graziers. Ibex and gazelles remain vulnerable to poaching.

Other Stakeholders

Local community identity: Principal tribes are the Sibea and Suhul; less than 20% of the region’s population is nomadic or only semi-settled.

Local economic structure: Not known.

Local communities involvement: Some local people employed as rangers. Services such as petrol, diesel and food and water supplies obtained locally.

Government ministry involvement: None.

Regional Infrastructure

Nearest petrol supplies: Howtah Bani Tamim (15km).

Nearest over-night accommodation: Howtah Bani Tamim (15km).

Nearest towns (150 km radius): Howtah Bani Tamim, Hilwa and Hariq are all within 15-20km; Al Kharj lies ~100 km to the north, and Riyadh is around 150km to the north east.

Distance to regional centre (Emara): Riyadh, 150km.

Nearest national sealed road: <10km

Regional tourist attractions: None.

Regional tourism developments: None.

Summary Assessment Notes

Scenic and landscape: Beautiful wadi canyons with good natural vegetative cover outside the RUR grazing zones, and views from the escarpment and plateau.

Wildlife: Good possibilities to view ibex and idmi (mountain) gazelle.

Cultural/historical: Traditional hema designation, and some pre-historic sites, may be of limited interest.

Existing facilities: Generally inadequate for all but limited volume day visits.

Location and access: Relatively easy access via well-marked tracks from sealed roads, with the reserve within easy reach from the major urban centre of Riyadh.

Sensitivity / security: Safe, and moderately resilient to human activities.
Potential activities: Driven tours and circuit drives to view wildlife; picnic and camping sites, with scope for a visitor centre.

Rating

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

Scenery : 1
Wildlife : 2
Cultural/historical : 3
Facilities : 3
Access : 2
Sensitivity : 2

Summed Ratings = 13

Ranking 7/12

Category Group 1: High priority for tourism development.
Protected Area  
King Khaled Wildlife Reserve  
(Thumammah Nature Park)

Administrative features

Category  : Natural Reserve (core Biological Reserve)
Date of creation  : Captive-breeding center and core area passed to NCWCD control in 1986.
Reasons for designation  : Protection of plants and animals in natural habitats, and recreational use.
Responsible agency  : NCWCD is responsible for the KKWRC breeding and research station through contract to the Zoological Society of London; the Riyadh Local Authority administers the wider recreation area.
Size and sectors  : ~150km², including the KKWRC 6km² livestock exclusions zone.
Emirate(s)  : The reserve is situated in the Riyadh Emirate.
Central co-ordinates  : 0°N, 0°E
Existing maps  : The reserve is covered by the following map:
   • Ministry of Petroleum and Mineral Resources 1:2,000,000: (1983)
Management plans  : The role of the KKWRC is set down in NCWCD strategic plans.
Tourism strategy  : The larger area is administered by the Riyadh Authority specifically for public recreation, this includes provision of camp sites and picnic grounds. KKWRC operates informal public visits to animal collections.

Natural Features

Landscape  : The area is dominated by two limestone escarpments, separated by a plateau which overlooks a gravel plain cut by shallow wadis.
Climate  : Meteorological data is measured from Riyadh airport. Mean annual rainfall is around 120mm; mean annual temperature is ~25°C.
Vegetation  : The major wadi channels hold a good cover of Acacia woodland, with many shrubs, dominated by Haloxylon, and perennial grasses. Cover is sparse to absent on the gravel plains and escarpments.
Scenic values  : Camp sites established by the Riyadh Authority seek to make use of views from the escarpments.
Key animals  : The following mammals have been recorded in the area: Rueppell’s fox (Vulpes rueppelli), red fox (Vulpes vulpes), wild cat (F. silvestris), Ethiopian hedgehog (Paraechinus aethiopicus), Cape hare, Cheesman’s gerbil (Gerbillus cheesmani), Baluchistan gerbil (G. nanus), Sundervall’s jird (Meriones crassus), Libyan jird (M. libycus), lesser jerboa (Jaculus jaculus). Arabian oryx,
dorcas, reem and idmi gazelles, and ostrich are held within the KKWRC animal collection.
The current bird list for the area contains around 150 species, including a large diversity of migrants.

**Probability of seeing top six key animals**
- Reem gazelle 1
- Idmi gazelle 1
- Dorcas 1
- Arabian oryx 1
- Ostrich 1
- Red/Ruppell’s fox 3

**Key sites** : KKWRC’s livestock exclusion zone, and the animals enclosures.

**Key seasons** : Spring and winter, when the area has the highest numbers of visitors.

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### Cultural Features

**Traditional uses** : Some livestock grazing.

**Cultural importance** : Winter camping site in recent years.

**Historical features** : None known.

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### PA Infrastructure

**Border demarcation** : KKWRC is within a fenced compound formerly a residence of the late King Khaled.

**Rangers/other staff** : The land of KKWRC is still under royal ownership and access is regulated; checkpoints monitor traffic in the wider area. KKWRC employs a staff of Saudi nationals and expatriates to manage the care and maintenance of the animals collections.

**Responsibilities of rangers** : Not applicable

**Ranger chain of command** : KKWRC Director reports jointly to NCWCD in Riyadh and ZSL in London.

**Camps and other buildings** : KKWRC consists of office and laboratory space, with staff accommodation on site and within a nearby royal compound.

**Tracks and roads** : The area has a network of sealed roads servicing Thumamah village and surrounding areas.

**Other facilities** : The Riyadh Authority has established four permanent campsites on the escarpment.

**Maintenance of facilities** : On-site maintenance at KKWRC is the responsibility of KKWRC staff and their support staff of labourers ad mechanics, with support from
local contractors and NCWCD in Riyadh. The Riyadh Authority is responsible for maintaining the campsites.

**Other patrols** : Not applicable.

**Threats to integrity** : Off-road driving; tree-cutting, and unregulated grazing by camels and sheep in the wider area.

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**Other Stakeholders**

**Local community identity** : Principal tribes are Sibea and Suhul; most of the region’s population is settled.

**Local economic structure** : Riyadh is the capital city of Saudi Arabia.

**Local communities involvement** : Services such as petrol, diesel and food and water supplies obtained locally.

**Government ministry involvement** : Riyadh Local Authority administers the wider recreational area; the Royal Court retains ultimate control over the KKWRC area.

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**Regional Infrastructure**

**Nearest petrol supplies** : Thumammah village

**Nearest over-night accommodation** : Riyadh airport hotel.

**Nearest towns (150 km radius)** : Riyadh

**Distance to regional centre (Emara)** : ~100km to Riyadh

**Nearest national sealed road** : A sealed road runs through the area.

**Regional tourist attractions** : Riyadh Authority campsites.

**Regional tourism developments** : As above.

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**Summary Assessment Notes**

**Scenic and landscape** : Attractive escarpment views and well vegetated wadis. Gravel plains may hold numerous flowering ephemeral species in spring after good winter rains.

**Wildlife** : Animal collections at KKWRC guarantee viewing of gazelles and other native species, although in captive situations.

**Cultural/historical** : Former royal compound of minor historical value.

**Existing facilities** : Limited campsite accommodation is available in the wider area; KKWRC is able to cater for day visits only.

**Location and access** : Easily accessed by major road network.
**Sensitivity / security**: Safe for visitors; environment not easily damaged by sensible use.

**Potential activities**: Camping, picnicking, wadi and escarpment walks; visits to the animals collections of KKWRC.

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**Rating**

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

- Scenery : 2
- Wildlife : 1
- Cultural/historical : 3
- Facilities : 2
- Access : 1
- Sensitivity : 1

**Summed Ratings** = 10

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**Ranking** 3/12

**Category** Group 1: High priority for tourism development.

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References
Protected Area: Mahazat as-Sayd

Administrative features

Category: Special Natural Reserve

Date of creation: Declared 1988 (BOG); ratified 1989 (Council of Ministers)

Reasons for designation: Mahazat as-Sayd was selected as a representative portion the western edge of the Najd Pediplain, known to have once supported populations of gazelle, most notably reem *Gazella subgutturosa*, but also possibly idmi *G. gazella* and afri *G. dorcas* (Vesey-Fitzgerald 1952).

With the potential to support high biological diversity following the recovery of vegetation from overgrazing, Mahazat as-Sayd was intended to be the first reintroduction site for Arabian oryx *Oryx leucoryx*, and other native species such as houbara bustard *Chlamydotis undulata macqueenii*, reem gazelle, and wildlife substitutes such as red-necked ostrich *Struthio camelus*.

Responsible agency: NCWCD

Size and sectors: The total fenced area is 2,244 km², with no subdivisions.

Emirate(s): The reserve is situated in the Makkah Emirate.

Central co-ordinates: 22° 15' N, 41° 40' E

Existing maps: The reserve is covered by the following maps:
- 1: 50,000 Series: 4121-41, 14, 11, 44, 4122-42, 13, 12, 43, 31, 24, 34, 32, 23, 22, 33
- Landsat USGS images: GM 210 Southern Hijaz; GM 211 Southern Najd
- NCWCD map: 1:100,000, Ministry of Defence and Aviation, 1993


Tourism strategy: There are no permanent visitor facilities in Mahazat as-Sayd, nor are there any regular visits by school or public groups. The reserve however, is a good example of the potential for the rangeland to recover from overgrazing and illustrates what the surrounding districts could have looked like 50 years ago, before grazing pressure became unsustainable.
The area’s designation allows for public visitation, and the following would be permissible: game viewing by vehicle or by foot; development of picnic sites, displays, animals viewing sites, tracks and footpaths, and possibly limited tourist camps.

Mahazat as-Sayd policy states that any development of public visitation should minimise the possible impact of visitors on the natural plant and animal communities, and on the research and monitoring programmes underway or planned for the reserve. Visitors to the reserve should be supervised at all times, and their movements restricted to predefined parts of the reserve only. At present no such zoning has been defined.

Areas of the reserve identified by research and monitoring projects to contain important or vulnerable populations of plants or animals should be designated as "limited access areas", open only to researchers and rangers.

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**Natural Features**

**Landscape**: Mahazat as-Sayd lies on an open plain of sand and gravel on the eastern edge of the Nadj Pediplain, in the Arabian Hinterland physiographic province (Child and Grainger 1990). The area is gently undulating with elevations ranging from about 900 metres above sea level (a.s.l.) in wadis and depressions, to 1,100 metres a.s.l. on the high ground to the north-west of the reserve. There is a 9% slope from north to south (Gillet and Launay 1990). Two small jabals, Sha’af ash Shamali or White Jabal, and Sha’af ash Janubi or Black Jabal, rise from the relatively flat eastern portion of the reserve. Sandy soils, including gravel, cover 96.3% of the reserve’s area (Gillet and Launay 1990). Basaltic relief comprises 3.65 percent of the surface area and is of pre-Cambrian origin, consisting of crystalline, highly metamorphosed rock. Quartz-like rock covers the remaining 0.05% of the area.

**Climate**: Climate of the area is tropical and arid. Between April 1991 and April 1996, mean monthly minimum and maximum ambient temperatures measured at the Bird Camp ranged from 6 to 25°C and 19 to 42°C, respectively. During the same period, mean monthly humidity ranged from approximately 18 to 72%. The data from April 1991 to April 1996 shows considerable inter-annual variation in the amount (range ~50-240 mm) and timing of rainfall. Substantial rainfall typically occurs between March and May each year.

**Water**: The reserve has three wells; two at Rumrumiyah, the site of the Bird Camp, are functional, however chemical analyses conducted in 1992 indicated that their water was salt-laden and therefore not potable. The third well, located at 22°14.55' N, 41°43.31' E, near the middle of the reserve, is apparently dry. There are no permanent above-ground water sources in Mahazat as-Sayd, though after heavy rains water will accumulate in depressions and hollows and may persist for several weeks. Water for the camps is brought in by tanker from nearby wells outside the reserve.

**Vegetation**: Mahazat as-Sayd is typical desert habitat of the Arabian Hinterland. One hundred and fifty six species of plants, representing 43 families, have been described, with a small number of new species being located each year.

Various associations of Acacia (*Acacia tortillis*) and panicum (*Panicum turgidum*) predominate Mahazat as-Sayd's vegetation. A gradient of decreasing Acacia density exists from south to north, probably in relation to decreasing availability of ground water (Gillet and Launay 1990). Vegetative cover in the south of the reserve is relatively high, with increased density and size of trees of *A. tortillis* and *A. ehrenbergiana*. In contrast the northern part of the reserve is relatively sparsely vegetated, primarily by grasses, e.g. *P. turgidum* and *Lasiurus scindicus* and other herbaceous dicotyledons.
**Scenic values**: Generally flat or undulating terrain without specific outstanding geological features, but with an exceptional density and diversity of natural vegetation, demonstrative of recovery potential of the region following protection from overgrazing by domestic livestock.

**Key animals**: Apparently Arabian oryx, reem gazelle, and possibly two other species of gazelle (idmi and afri) historically occurred in the region of Mahazat as-Sayd (Vesey-Fitzgerald 1952). It is likely that large predators of these ungulates, possibly cheetah (*Acinonyx jubatus*), certainly wolf (*Canis lupus arabs*) and probably hyena (*Hyena hyena*) occurred also (Harrison and Bates 1991). When Mahazat as-Sayd was fenced wolf tracks were seen along the perimeter, and in June 1993 a very old wolf skull was found in the reserve. There is no evidence that wolves remain in the area. Hares (*Lepus capensis*) apparently also once occurred in the area, but are no longer present.

The following mammals have been identified in Mahazat as-Sayd: reintroduced Arabian oryx and reem gazelle, Rueppell's fox (*Vulpes rueppelli*), red fox (*Vulpes vulpes*), sand cat (*Felis margarita*), wild cat (*F. domesticus*), ratel (*Mellivora capensis*), Ethiopian hedgehog (*Paraechinus aethiopicus*), Cheesman's gerbil (*Gerbillus cheesmani*), Baluchistan gerbil (*G. nanus*), pygmy gerbil (*G. henleyi*), large Aden gerbil (*G. poecilops*), Sundervall's jird (*Meriones crassus*), desert jerboa (*Jaculus blanfordi*), and a single species of bat (*Rhinopoma hardwickii*) represented by one dead specimen found at the Bird Camp in 1995.

Reintroduction of Arabian oryx into Mahazat as-Sayd began in 1988 with the arrival at the NWRC of nine oryx from San Diego, followed by six animals from Shaumari, Jordan, in March 1989. A total of 76 oryx has been released into the reserve between March 1990 and May 1994. The Mahazat as-Sayd oryx population is currently estimated to be around 300 animals.

The reintroduction of reem into Mahazat as-Sayd has paralleled that of oryx. A total of 164 reem was released into Mahazat as-Sayd between 1991 and 1994. The current population is estimated to around 1,400 animals.

The current bird list for Mahazat as-Sayd contains 160 species, including a large diversity of migrants, notably raptors, but also waterbirds which utilise ephemeral water pools after heavy rainfall. Mahazat as-Sayd is a winter refuge for migrant houbara bustards, and an important breeding area for the Lappet-faced vulture (*Torgos tracheliotus*).

Reintroduction of houbara bustards into Mahazat as-Sayd began in 1991 with the hard release of five birds. As of June 1999 there are estimated to be around 110 houbara free-flying in the reserve; some of these birds are now two or three years old. The first breeding by reintroduced houbara was recorded in 1995 (Seddon and Gelnau 1995). The houbara reintroduction project has been reviewed and summarised in Combreau and Rambaud (1994), Combreau et al. (1995), Seddon et al. (1995), and Saint Jalme et al. (1996). Specific results from post-release studies are presented in Weigeldt et al. (1991), Anegay (1995), Combreau and Rambaud (1994), Maloney (1995), Combreau and Launay (in press), and in NWRC monthly and annual reports between 1991 and 1999.

**Probability of seeing top six key animals**:

<table>
<thead>
<tr>
<th>Animal</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arabian oryx</td>
<td>1</td>
</tr>
<tr>
<td>Reem gazelle</td>
<td>1</td>
</tr>
<tr>
<td>Houbara bustard</td>
<td>3</td>
</tr>
<tr>
<td>Red fox</td>
<td>3</td>
</tr>
<tr>
<td>Ruppell's fox</td>
<td>3</td>
</tr>
<tr>
<td>Sand cat</td>
<td>3</td>
</tr>
</tbody>
</table>

**Key sites**: Houbara nesting areas lie primarily in the east and north-east of the protected area. Houbara bustard reintroduction operations are centred around the Bird Camp. Arabian oryx and gazelles shade beneath trees of Acacia and Maerua during the day in summer, and are vulnerable to disturbance. Mammal and ostrich reintroduction operations are centred around the Mammal Camp.
Key seasons: Re-established houbara bustards nest between January and May each year. Ungulates may drop calves in any month of the year, but are most vulnerable to disturbance during the summer, June - September.

Cultural Features

Traditional uses: Seasonal grazing lands for camels, sheep and goats; hunting of gazelles

Cultural importance: Old Haji (pilgrim) road runs through the area, roughly from east to west, and marked with milestones. This however, is not a feature of significant current cultural interest.

Historical features: Apart from the pilgrim, there are a limited number of prehistoric sites, with worked flint, stone circles and remnant gazelle traps.

PA Infrastructure

Border demarcation: The entire 220 km perimeter is fenced with 2m high chain-link fencing, topped with 3 strands of barbed wire and with 0.9m of chicken mesh buried in the ground, and lying behind a large earth embankment. Posts are set in concrete. There are seven gates, all of which are kept closed with padlocks. Padlock keys are issued to all rangers and research staff.

Rangers/other staff: There are 8 NCWCD rangers working in Mahazat as-Sayd. All rangers are based at the Mammal Camp, and all work under the direct authority of the NCWCD, with local co-ordination of activities through NWRC-based staff.

NWRC and NWRC-based research staff undertake projects in Mahazat as-Sayd on oryx, gazelle, small mammals, mammalian carnivores, houbara, ostrich, vultures and general avifauna. Ostrich research is based at the Mammal Camp, whereas houbara, small mammal, mammalian carnivore and general avifauna research is based at the Bird Camp. Work on oryx, gazelle and vultures is undertaken by staff utilising both camps. Four full-time staff work in Mahazat as-Sayd, with up to four more working in the reserve intermittently.

Both camps have cooks and labourers. At the Mammal Camp there is one cook assigned to the rangers and two cooks/labourers assigned to the researchers. The Bird Camp has two cooks/labourers. Labourers working with research staff are additionally trained to provide technical assistance, e.g. with radio telemetry.

General maintenance is undertaken by the NWRC Maintenance department which sends a mechanic to the reserve one day each week.

Care of animals in enclosures, translocation of animals for release, and the post-mortem examination of animals found dead in the reserve is the responsibility of the NWRC Veterinary department, which sends a veterinarian to Mahazat as-Sayd one day each week.

Responsibilities of rangers: Prior to August 1995 NCWCD rangers undertook only the monitoring of free-ranging oryx and patrols of the perimeter fence. A review of the role of rangers in Mahazat as-Sayd during May to August 1995 resulted in a reduction and restructuring of the reserve's ranger force. Rangers' duties have been expanded to now include public relations activities in the surrounding districts, supervision of visiting groups, and assistance with broader monitoring and research programmes as required, in addition to the monitoring of oryx and patrolling of the fence. NCWCD rangers primarily undertake patrols of the reserve's boundaries and
interior, and secondarily provide supervision of visiting groups, and assistance with broader monitoring and research programmes as required, including liaison with scientific staff and aerial patrols; maintenance of camps and reporting of incidental wildlife sightings; NCWCD rangers are not officially empowered to arrest or detain offenders, nor to confiscate property.

**Ranger chain of command** : Day-to-day management of rangers camp structures is carried out by the head ranger or his deputy, under authority of an NWRC-based protected area co-ordinator, who in turn reports to the NCWCD head office staff in Riyadh. The Bird Camp is maintained and administered by NWRC.

**Camps and other buildings** : There are two camps, the Bird Camp (Rumrumeiyah) and the Mammal Camp. The Mammal Camp has accommodation for NCWCD rangers, and for a small number of research staff. The Bird Camp houses research staff only. Buildings in Mahazat as-Sayd are used for housing staff, for administration and for maintenance and research. There are no permanent buildings in the reserve, except for a semi-permanent workshop at the Bird Camp and a concrete block toilet at the Mammal Camp; other buildings are tents or portacabins.

**Tracks and roads** : The reserve is bounded to the north-west and south-west by public sealed roads outside the perimeter fence, the Taif/Riyadh highway and the Al Khurmah roads respectively. There is an approximately 6 km stretch of sealed road running from the main gate to the Mammal Camp. An unsealed, graded perimeter track runs around the reserve inside the fence, and an unsealed track runs from the Mammal Camp, through the Bird Camp, to the Al Khurmah gate on the eastern boundary. There is a network of unsealed tracks throughout the reserve, including the overgrown remnants of large tracks that joined the towns of Al Muwayh and Al Khurmah before the reserve was created.

**Other facilities** : Both camps have UHF communication with the NWRC and Riyadh. Some of the vehicles used in the reserve are equipped with VHF/FM radios for car-to-car and car-to-camp communication. The Mammal Camp was equipped with a PTT telephone connection in 1994.

A helicopter pad and windsock are located approximately 1 km north of the main gate, beside the sealed road leading to the Mammal Camp.

The Bird Camp has an unsealed, graded runway and windsock for use by the NCWCD Aviation Department's Maule single-engine aircraft. The sealed road from the main gate to the Mammal Camp may be used for landings, but predominant cross-winds make this unsafe. The NCWCD Aviation Department maintains hangar facilities at the NWRC. The nearest commercial airport is at Taif, about 80 km to the southwest. There are some flying restrictions in the area due to the proximity of the Taif Airbase.

Diesel-powered generators are maintained at each camp. These are required for the running of freezers, lights, computers, repeaters, radios, air-conditioners etc.

There is a 36,000 l petrol tank at the Mammal Camp exclusively for use by rangers. Currently petrol is brought to the Bird Camp from Al Khurmah in 80 l drums.

**Maintenance of facilities** : On-site maintenance is carried out by NWRC, with support from local contractors and NCWCD in Riyadh.

**Threats to integrity** : None.

**Other Stakeholders**

**Local community identity** : Principal tribes are the Utaibah and the Thaqif; more than 70% of the region’s population is settled or semi-settled.

**Local economic structure** : Not known.
Local communities involvement: Some local people employed as rangers. Services such as petrol, diesel and food and water supplies obtained locally.

Government ministry involvement: Ministry of Communications contractors maintain the perimeter and main central tracks.

Regional Infrastructure

Nearest petrol supplies: 15 km from main gate to small station on Riyadh highway.

Nearest over-night accommodation: 15 km from main gate to small hotel on Riyadh highway.

Nearest towns (150 km radius): Al Muwayh; Zalim; Al Khurmah; Afif; Radwan.

Distance to regional centre (Emara): 180 km to Taif, sub-regional administration within the Makkah Emirate.

Nearest national sealed road: 6 km from Mammal Camp to Al Khurmah secondary road; 16 km from Mammal Camp to main Jeddah-Riyadh highway.

Regional tourist attractions: Wabah Crater (spectacular sunken volcanic crater ~100 km to north-west); Old Al Muwayh and former royal hunting lodge (~80 km to north-west). Taif city, 180km to the south-west, is a popular summer holiday destination, and gateway to the summer resort towns of Jeddah (360 km), Al Baha (380 km) and Abha (680 km).

Regional tourism developments: Developments in Taif and in Abha may increase summer traffic along the Riyadh-Taif/Jeddah highway.

Summary Assessment Notes

Scenic and landscape: Generally flat or undulating landscape is of only limited appeal, but much could be made of the dramatic recovery of the natural vegetation, particularly grasses and trees, following protection from livestock grazing.

Wildlife: Arabian oryx and reem gazelles are both high-profile and easily viewed.

Cultural/historical: Old pilgrim (Haj) road of possible interest.

Existing facilities: Existing camps could host day-visitors, or limited numbers of over-night guests, but dedicated visitor center is required at a location other than that of either of the two existing research/ranger camps.

Location and access: Easily accessible from sealed roads, including the major Riyadh highway.

Sensitivity / security: Safe for visitors, but re-established wildlife populations vulnerable to disturbance at certain times of the year.
Potential activities: Day trips with driven or walking tours with the focus on viewing reintroduced ungulates; regulated overnight camping; camel treks, particularly along the old pilgrim road.

Rating

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

Scenery: 2
Wildlife: 1
Cultural/historical: 3
Facilities: 3
Access: 1
Sensitivity: 2

Summed Ratings = 12

Ranking 5/-12
Category Group 1: High priority for tourism development.
Protected Area  Majami’ al-Hadb

**Administrative features**

**Category**  : Nominally Natural Reserve and Resource Use Reserve

**Date of creation**  : Declared 1994 (BOG).

**Reasons for designation**  : The NCWCD was called in to administer the area in which grazing rights and well access were the subject of a tribal dispute. The area contains spectacular granite domes and is a potential reintroduction site for gazelles, Arabian oryx and ostrich.

**Responsible agency**  : NCWCD

**Size and sectors**  : ~2,000 km², undivided at present.

**Emirate(s)**  : The reserve is situated in the Mecca Emirate.

**Central co-ordinates**  : 21° 40’N, 44° 00’E

**Existing maps**  : The reserve is covered by the following maps:
- Ministry of Petroleum and Mineral Resources (USGS) 1:2,000,000: (1983)
- Landsat USGS images: 1:500,000: 211
- NCWCD map.

**Management plans**  : Draft plans exist, but no current plan is being implemented.

**Tourism strategy**  : None, but the area’s potential for tourism development is acknowledged in the Child and Grainger (1990) System Plan.

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**Natural Features**

**Landscape**  : Dramatic landscape of granite exfoliation domes, with basalt hills and major wadis.

**Climate**  : No data, but likely to approximate conditions in Mahazat as-Sayd, with mean annual rainfall around 50-100mm, and a mean temperature of ~25°C

**Water**  : Water run-off from the granite domes locally enhances ground water. The area contains a number of wells, some of which are the source of a long-standing tribal dispute. A key disputed well was recently filled in by the Ministry of Agriculture, and two new wells will be dug.

**Vegetation**  : Relatively luxuriant vegetation exists due to the dome run-off and good ground water supplies. The dwarf shrubland is dominated by the grass Cymbopogon, and there are mature trees of Acacia and Maerua. The area is one of the most inland desert sites for some species whose range is typically within the Sarawat mountain region.

**Scenic values**  : Spectacular and numerous granite domes provide a unique landscape.
Key animals: The following mammals are likely to be present, wolf (*Canis lupus*), striped hyena (*Hyaena hyaena*), Rueppell's fox (*Vulpes rueppelli*), red fox (*Vulpes vulpes*), caracal (*Felis caracal*), wild cat (*F. silvestris*), ratel (*Mellivora capensis*), *aethiopicus*), lesser jerboa (*Jaculus jaculus*). Plans have been put forward for the reintroduction of gazelle, but these have been suspended until the boundary dispute is settled.

There is no current bird list for the area but a number of resident breeding species have been recorded. There is also a diversity of migrants, notably raptors, but also waterbirds which utilise ephemeral water pools after heavy rainfall.

**Probability of seeing top six key animals:**

General rating 3

**Key sites:** Wadi junctions and regions of numerous granite domes in the north.

**Key seasons:** Spring.

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**Cultural Features**

**Traditional uses:** Tribal grazing lands and regionally important wells.

**Cultural importance:** As above.

**Historical features:** None known.

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**PA Infrastructure**

**Border demarcation:** Currently not clearly defined. A recent re-drafting of the borders by the NCWCD Legal Department aimed to address the well dispute, rather than incorporate significant biological or habitat features.

**Rangers/other staff:** Up to six NCWCD rangers have been assigned to the area.

**Responsibilities of rangers:** NCWCD rangers primarily undertake patrols of the reserve’s boundaries and interior, and were intended to prepare for the now-delayed release of gazelles.

**Ranger chain of command:** Day-to-day management of rangers is carried out by the head ranger under authority of NCWCD head office staff in Riyadh.

**Camps and other buildings:** There are two camps, both consisting of tents.

**Tracks and roads:** The reserve has no sealed roads.

**Other facilities:** None.

**Maintenance of facilities:** On-site maintenance is the responsibility of the rangers and their support staff, with support from local contractors and NCWCD in Riyadh.

**Other patrols:** None.
Threats to integrity: Unregulated grazing, wood-cutting and the on-going dispute, which has additionally soured relations with the NCWCD.

Other Stakeholders

Local community identity: Principal tribes are the Subay’i to the west, and the Dawasir to the east.

Local economic structure: Based on nomadic and semi-settled livestock herding.

Local communities involvement: Some local people employed as rangers. Services such as petrol, diesel and food and water supplies obtained locally. NCWCD liase with tribal leaders over potential management and boundary definition.

Government ministry involvement: Ministry of Agriculture remains involved in the management of wells, while the Ministry of Interior is concerned with the disputes.

Regional Infrastructure

Nearest petrol supplies: Ranyah, ~150km due west.

Nearest over-night accommodation: Ranyah.

Nearest towns (150 km radius): Ranyah.

Distance to regional centre (Emara): A regional administrative office is based in Taif, >300km to the south-west.

Nearest national sealed road: Ranyah.

Regional tourist attractions: None.

Regional tourism developments: None.

Summary Assessment Notes

Scenic and landscape: Unequalled granite exfoliation domes provide a landscape that could be a major tourist attraction.

Wildlife: Low diversity and mainly cryptic species provide limited viewing opportunities.

Cultural/historical: Nothing of significance known.

Existing facilities: None.

Location and access: Currently accessible only via network of unmarked and ungraded off-rad tracks.

Sensitivity / security: While the environment is resilient to regulated human use, the tribal dispute makes the area unsafe for outsiders at the present time.
Potential activities: Day visits; overnight camping, and guided walks.

Rating

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

Scenery : 2
Wildlife : 3
Cultural/historical : 4
Facilities : 4
Access : 3
Sensitivity : 4

Summed Ratings = 20

Ranking 12/12
Category Group 3: Unsuitable for tourism development in the medium to long-term.
**Protected Area**  
National Wildlife Research Center

**Administrative features**

**Category** : Core area Biological Reserve, with selected sites within and around the BR managed as Natural Reserves for native vegetation recovery.

**Date of creation** : Declared 1986 (BOG); ratified 1986 (Council of Ministers); extension area created in 1993.

**Reasons for designation** : Creation of a research and captive-breeding centre for threatened native species, and protection of a representative portion of the Asir highland rangelands.

**Responsible agency** : NWRC/NCWCD

**Size and sectors** : Core BR area ~6km², encompassing a small (50ha) botanical reserve; the “Extension” surrounds the BR zone, is managed as an NR and acts as a buffer zone, extending the total area of the NWRC to ~35km².

**Emirate(s)** : The reserve is situated in the Makkah Emirate.

**Central co-ordinates** : 21° 30'N, 40° 40'E

**Existing maps** : The reserve is covered by the following maps:  
- Landsat USGS images: 1:500,000. GM 210 Southern Hijaz.

**Management plans** : The role of the NWRC as a research station of the NCWCD is set down in central strategy documents, e.g. Child and Grainger (1990). Annual planning by NWRC has been dealt with in numerous project proposals, and monthly and annual reports submitted to NCWCD.

**Tourism strategy** : The NWRC has no formal strategy for public visits. There is a visiting schools programme for the region, which brings to the Center several hundred (male) pupils from junior and high schools and universities, each year. Incidental visits by guests or members of the general public are handled as requests come in.

**Natural Features**

**Landscape** : Gently undulating plain of gravel and sand, typical of the Asir highlands, with isolated fragments of the crystalline rocks of the Arabian Shield protruding from the plain.

**Climate** : Mean annual rainfall of just over 200mm, falling mainly in spring, and late autumn. Mean annual temperature 22.9°C

**Water** : No permanent water. Potable water trucked in from nearby wells.

**Vegetation** : Typical plant communities of the inland Asir plateau, with associations dominated by Acacia, Fagonia, Zygophyllum and Salsola well represented in shallow wadis areas, relatively dense grass cover, and abundant
growth of annual plants after spring rainfall. A total of 22 plant species have been recorded.

**Scenic values**: Crystalline rock outcrops and dense natural vegetation make for pleasing, if not spectacular, scenery.

**Key animals**: The following mammals are included in the captive collections at NWRC: Arabia oryx (*Oryx leucoryx*); idmi (mountain) gazelle (*Gazella gazella*); Nubian ibex (*Capra ibex*); Arabian leopard (*Panthera pardus nimr*); Hamadryas baboon (*Papio hamadryas*); wolf (*Canis lupus*); striped hyena (*Hyaena hyaena*); red fox (*Vulpes vulpes*); caracal (*Felis caracal*); wild cat (*F. silvestris*); Cape hare (*Lepus capensis*).

The following species of birds are captive-bred or otherwise held at NWRC: houbara bustard (*Chlamydotis [undulata] macqueenii*); red-necked ostrich (*Struthio camelus camelus*); Arabian red-legged partridge (*Alectoris melanocephala*); Philby’s rock partridge (*Alectoris philbyi*).

The current bird list for the NWRC region contains 154 species, including a large diversity of migrants.

**Probability of seeing top six key animals**:

- Arabian oryx: 1
- Nubian ibex: 1
- Houbara bustard: 1
- Arabian wolf: 1
- Striped hyena: 1
- Red-necked ostrich: 1

**Key sites**: Public access is not possible within the houbara bustard breeding or rearing units, in selected Arabian oryx enclosures, the Arabian leopard cage, and certain other facilities.

**Key seasons**: Houbara bustards breed between January and May each year, and displaying males could be viewed at this time, otherwise all species are viewable at any time of the year.

**Cultural Features**

**Traditional uses**: Some grazing by domestic livestock before the NWRC was established, but the surrounding region has become progressively more settled since 1986.

**Cultural importance**: None known.

**Historical features**: Some undated rock paintings are present in NWRC extension area.

**PA Infrastructure**

**Border demarcation**: Core BR is fenced with predator-proof electric fencing; the NR extension is fenced with low rolls of staked barbed wire.

**Rangers/other staff**: Multi-national staff comprising a total of 55 scientific, technical, administrative and other support personnel. Expatriate staff lives on site, whereas Saudi staff generally live in Taif.
Responsibilities: Captive-breeding and reintroduction of Arabian oryx, houbara bustards and red-necked ostrich; protected area surveys and management in the south-western region; general field surveys and other duties as directed by the NCWCD Secretary General.

Chain of command: NWRC reports directly to NCWCD in Riyadh, but has certain executive authority over its central budget allocation.

Camps and other buildings: Structures at NWRC include: offices, laboratories, a library, storage rooms, workshops, generator sheds and garages, animal enclosures and enclosed breeding/rearing units, housing for on-site staff, communal kitchen and dining room, and gatehouse. An aircraft hangar is situated in the extension area, accessible from the core zone via a pedestrian gate.

Tracks and roads: There is a small network of sealed roads (<5km) providing access from the main gate to the NWRC’s buildings. A wider network of graded tracks links the animal enclosures. The extension is reached via two gates from the main road, but has no sealed roads itself, apart from a tar-sealed runway for light aircraft.

Other facilities: On site petrol station; radio and telephone communication; meeting room with all audio-visual facilities; tour bus operated by NWRC, and restaurant facilities. Some small, furnished apartments intermittently available, along with an 8-bed guest house.

Maintenance of facilities: On-site maintenance is the responsibility of the NWRC maintenance department with its staff of labourers and mechanics, with support from local contractors and NCWCD in Riyadh as required.

Other patrols: Not applicable.

Threats to integrity: The development of intensive commercial agricultural ventures in the surrounding district, e.g. chicken farms, could introduce a disease risk to captive native species held at NWRC. Small scale incursions by domestic goats into the extension area have occurred infrequently.

Other Stakeholders

Local community identity: Principal tribes are the Utaibah, the Thaqif, and the Hozayl; over 80% of the region’s population is settled.

Local economic structure: Not known.

Local communities involvement: Some local people employed as support staff. Services such as petrol, diesel and food and water supplies obtained from Taif city.

Government ministry involvement: Land granted through the Ministry of Agriculture and the Makkah Emara.

Regional Infrastructure

Nearest petrol supplies: On site, and within ~15 km.
Nearest over-night accommodation: On site, and within ~15 km. Four star accommodation available at the Al Hada Sheraton (60km) and the Taif Intercontinental Hotel (65km)

Nearest towns (150 km radius): Al Sudairah (20km); Taif (45km); Makkah (120km), and numerous settlements.

Distance to regional centre (Emara): Taif (45km)

Nearest national sealed road: 0km, road to Sudairah Village; 10km to main Taif - Al Baha highway.

Regional tourist attractions: Taif and Al Baha (200km) are major summer tourist destinations, and provide access to Jeddah and to Abha, the most popular summer resort cities in Saudi Arabia.

Regional tourism developments: Hotels, family parks and picnic areas camping sites, and resort villages are developing rapidly along the Taif - Abha highway.

Summary Assessment Notes

Scenic and landscape: Attractive, but not spectacular rock formations and natural vegetation.

Wildlife: Unrivalled site for viewing native Arabian species in captivity.

Cultural/historical: Rock paintings have only limited public appeal, but could be developed as part of a circuit tour in the extension.

Existing facilities: Some day, and limited overnight, visits currently possible and underway, with scope for expansion of numbers without major new facilities being required. A more natural setting for wildlife displays would be possible in the extension, but would require significant development input.

Location and access: Easily reached as a day trip from several major urban centres.

Sensitivity / security: With regulated or restricted access around certain animals facilities and enclosures, the NWRC could easily cope with a reasonable volume of visitors.

Potential activities: Guided tours, by bus, car or on foot, of the NWRC animal collections, with viewing of promotional and educational videos and talks by staff; a dedicated visitor centre, lookout points and circuit drives or walks, with picnic areas, could be established in the NR extension area, with a selection of animals visible within large natural enclosures.

Rating

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

Scenery: 2
Wildlife : 1
Cultural/historical : 3
Facilities : 1
Access : 1
Sensitivity : 1

Summed Ratings = 9

Ranking 1=/12

Category Group 1: High priority for tourism development.
Protected Area  Raydah

Administrative features

Category : Special Natural Reserve

Date of creation : Declared 1989 (BOG); ratified (Council of Ministers)

Reasons for designation : Intact example of escarpment juniper woodland, and habitat for all nine Arabian bird endemics found in Saudi Arabia.

Responsible agency : NCWCD

Size and sectors : 9 km² of steeply sloped escarpment, dropping from a maximum of 2,850 down to 1,600 m asl, encompassing pristine juniper woodland in the upper portion, giving way to open scrub and grassland in the lower reaches. Given the fall of 1,000m in 3km, the actual area of Raydah has been estimated at 12km².

Emirate(s) : The reserve is situated in the Asir Emirate.

Central co-ordinates : 18° 12’N, 42° 24’E

Existing maps : The reserve is covered by (but not shown on) the following map:
- 1:50,000: Sheet 4218-32, Abha (West)

Management plans : Raydah lacks a single, comprehensive management plan. There have been however, a number of draft work plans proposing specific actions, usually over a limited time frame, e.g. Anon. (1988); Child and Grainger (1990); Newton and Schwede (1992); Newton (1993); Blot and Hajar (1994). The most recent of these, but also not an official policy document, is Usui and Al-Abbasi (1995), which set out a schedule for priority actions to take place between 1996 and 1998.

Tourism strategy : There are no official facilities for public visits to the area and no NCWCD sponsored programme for public access. Unofficially, there is general public access to the reserve, although the steep unsealed track is suitable for four-wheel drive vehicles only. NCWCD rangers stationed at the top of the escarpment are supposed to limit vehicular traffic to official visitors and residents of Raydah village at the bottom of the escarpment.

Natural Features

Landscape : Typical steep granite and gneiss Asir escarpment, in the Western Highlands geographic region. The Raydah escarpment drops from 2,850 m asl down to wadis Jaw and Maraba at about 1,300 m asl

Climate : The high elevation results in relatively cool summer temperatures and peak rainfall in early spring and in summer, measured in nearby As-Soudah to be around 550mm per annum. Winters can be cold, but dry. The mean annual temperature is less than 19°C, making the region a popular holiday destination in the summer months.
Water: Some permanent water seeps are present at several points in the reserve. Nearest the track in the upper central region is a spring fitted with a tap to provide an ablution site for a small praying area.

Vegetation: Relatively undisturbed, mature juniper woodland, dominated by Juniperus procera down to around 1700 m asl, with sclerophyllous scrub and succulents such as Aloe providing cover below 1700 m asl. There is a zone of juniper die-back below ~2300 m asl, that has attracted research attention in recent years. The reserve contains eight endemic or near endemic plant species, and 25 species that are rare in Saudi Arabia.

Scenic values: The upper reaches of the reserve provide panoramic views over dense juniper cloud forest.

Key animals: The following mammals have been recorded in Raydah: Arabian wolf (Canis lupus), striped hyena (Hyena hyena), Hamadryas baboon (Papio hamadryas), red fox (Vulpes vulpes), caracal (Felis caracal), wild cat and feral cat (F. silvestris), African small-spotted genet (Genetta felina), ratel (Mellivora capensis), Indian crested porcupine (Hystrix indica), Wagner's gerbil (G. dasyurus), King jird (Meriones rex), Egyptian spiny mouse (Acomys cahirinus), Rock rat (Praomys fumatus), and severla species of bat, including Geoffroy’s bat (Myotis emarginatus), and the Epauleted fruit bat (Epomophorus labiatus). Arabian leopards (Panthera pardus nimr) have been recorded in the region in recent times, but are no longer believed to be present.

The current bird list for Raydah contains 125 species, including a high density of endemic species and resident or breeding Afro-tropical forest species.

Probability of seeing top six key animals:
- Endemic birds: 2
- Hamadryas baboon: 2
- Wild cat/red fox: 3
- Porcupine: 3
- Genet/ratel: 4
- Hyena/wolf: 4

Key sites: Dense mature juniper woodland above 2300 m asl contains the highest biodiversity.

Key seasons: Rock falls and washouts during early spring and summer rainfall may make the unsealed track hazardous.

Cultural Features

Traditional uses: The Raydah area has, and still is, used for cattle and goat herding, although this considered incompatible with the preservation of the natural vegetation. Bee-keeping also continues in the reserve; the hives are tended by residents of Raydah village at the bottom of the escarpment. Some collection of dead wood takes place.

Cultural importance: With a plant list of around 350 recorded species, it is possible that Raydah provides incidental protection for plants used in traditional medicines. Raydah has been a hema (traditional form of protected area) for the protection of trees for at least 200 years.

Historical features: There are some stone watch towers that are at least 100 years old, in the lower reaches of the escarpment, possibly just outside the lower boundary of the reserve.
PA Infrastructure

**Border demarcation**: The upper border is formed by the escarpment lip. The lower border follows the 1600 m contour, but is not marked. The other two boundaries to the roughly rectangular area, to the NNW and the SSE, follow the ridge systems enclosing the valley that is Raydah Reserve.

**Rangers/other staff**: Three rangers and one cook are assigned to Raydah. A temporary, but long-term, labourer is based with the rangers to undertake propagation of juniper seedlings and to make meteorological recordings for on-going scientific monitoring. Research staff from NCWCD visit the area to study plants, birds, mammals and other wildlife.

**Responsibilities of rangers**: NCWCD rangers primarily undertake patrols of the reserve’s interior, although patrols are almost exclusively restricted to the central track. Rangers are also required to regulate the flow of vehicular traffic into the reserve, maintain the camp, and report incidental wildlife sightings. NCWCD rangers are not officially empowered to arrest or detain offenders, nor to confiscate property.

**Ranger chain of command**: Day-to-day management of rangers and camp structures is carried out by the head ranger or his deputy, under authority of NCWCD head office staff in Riyadh.

**Camps and other buildings**: The rangers have use of two portacabins adjacent to the reserve’s access track at the lip of the escarpment. An unused police checkpoint, constructed of concrete block, is potentially available for use by the rangers, and is sited immediately across the track from the portacabins. A third portacabin is available for visitors and research staff.

**Tracks and roads**: The reserve has a single unsealed track which runs from the lip of the escarpment down to provide access to Raydah village below the reserve’s lower boundary. This track is extremely steep in places and is suitable only for four-wheel drive vehicles. The track is graded after heavy rains or rock falls.

**Other facilities**: There is an abandoned farm in the middle of the reserve, at about 2400m asl, comprising a series of small fallow terraces and half a dozen crude, earthen floored dwelling structures. Just below the ranger station is a football pitch and picnic area that are owned by the Abha Municipality and are not officially part of the reserve.

**Maintenance of facilities**: On-site maintenance is the responsibility of the rangers and their support staff, with support from local contractors and NCWCD in Riyadh.

**Other patrols**: Until 1997 the police manned the checkpoint at the top of the reserve, and effectively monitored traffic flow continuously. The abandonment of this police checkpoint places the onus of monitoring on the rangers.

**Threats to integrity**: Cattle grazing is unregulated in the reserve, and trampling may be adversely affecting natural regeneration of juniper and under-storey plants. Litter from the municipality football pitch sometimes spills into the reserve. The central farm, although abandoned, is still privately owned and could in principle be resurrected, sold, leased or re-developed. A high volume of vehicular traffic on the unsealed track would increase erosion, necessitating repairs which can have an impact on the adjacent forest.
Other Stakeholders

Local community identity: Principal tribes are Rijal Al Ma and Baalahmar; >90% of the region’s population is settled or semi-settled, with some seasonal movements between grazing and crop-growing sites.

Local economic structure: Inhabitants of Raydah village (~70-100 people at any one time) and the settlement of As-Suqa at the top of the escarpment, obtain their livelihood from small-scale agriculture, livestock herding and bee-keeping, as well as employment in government service and trade in Abha city and environs. Traditionally there has been a summer movement to As-Suqa, and winter residence in Raydah. As-Suqa was mainly for farming, while livestock herding predominated in Raydah.

Local communities involvement: Some local people employed as rangers. Services such as petrol, diesel and food and water supplies obtained locally.

Government ministry involvement: The Ministry of Transport is responsible for maintenance of the reserve’s unsealed track. Abha Emirate manages the football pitch and picnic ground at the escarpment lip. The Ministry of Agriculture is responsible for the wider Asir National Park - functionally a recreation zone, rather than a conservation area, and which includes Al Sanab Park with a common boundary with Raydah in the north-east.

Regional Infrastructure

Nearest petrol supplies: As-Suqa, ~2km from the ranger station.

Nearest over-night accommodation: 5 star hotel available at Abha Intercontinental, As-Soudah, ~10km from ranger station, with lower quality accommodation readily found within that distance.

Nearest towns (150 km radius): Abha lies about 20km from the reserve; numerous smaller towns within 150km.

Distance to regional centre (Emara): Abha, 20km.

Nearest national sealed road: As-Soudah - Abha road, ~3km from ranger station.

Regional tourist attractions: Abha is the Kingdom’s premier summer resort destination, attracting 1.3 million visitors in 1998 - approximately half of all domestic tourists in Saudi Arabia.

Regional tourism developments: The Asir National Park is a vast recreation zone administered by the Asir Emirate and the Ministry of Agriculture, encompassing Abha and other towns from the top of the Asir escarpment, down to the coastal plain. Within this “national park” the emphasis has been on provision of tourist facilities, including resort villages, villas and other self-contained accommodation, picnic sites and fairground attractions.

Summary Assessment Notes
Scenic and landscape: Pristine example of mature juniper forest with outstanding escarpment scenery.

Wildlife: Native birds, including significant numbers of endemics, may be seen by patient and motivated visitors. Other animal species not readily seen, but forest vegetation likely to have broad public appeal.

Cultural/historical: Traditional terrace agriculture and bee-keeping could be points of interest, along with ruined watch towers in the lower parts of the escarpment.

Existing facilities: With accommodation of all standards readily available in Abha and As-Soudah, the reserve needs only to provide modest reception facilities, with toilets and rubbish disposal. These however, are essential in order to minimise potential human impacts.

Location and access: The top of the reserve is easily reached from the As-Soudah road. Access down the escarpment itself is more problematical, due to the steep track and the need to limit traffic to minimise erosion. Walking access to upper parts of the reserve would be most appropriate.

Sensitivity / security: Safe for visitors, but the small size of the reserve mean that human activities would need to be closely regulated.

Potential activities: if the football field near the top of the escarpment could be secured for the reserve it would eliminate the rubbish problem that unregulated use of the area currently generates, and would be an excellent site for a visitor centre - providing visual access over the best parts of the reserve. Walking tours, possibly guided, would be appropriate, perhaps as far down as the farm, which could be tidied and managed as a viewpoint and picnic site. Specialist birding tours would be possible also.

Rating

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

Scenery: 1
Wildlife: 2
Cultural/historical: 2
Facilities: 3
Access: 1
Sensitivity: 2

Summed Ratings = 11

Ranking 4/12

Category Group 1: High priority for tourism development.
<table>
<thead>
<tr>
<th>Protected Area</th>
<th>Umm al-Qamari</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Administrative features</strong></td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Natural Reserve</td>
</tr>
<tr>
<td>Date of creation</td>
<td>Declared a Hunting Reserve by the Ministry of Interior in 1977/8, and passed to NCWCD authority in 1988.</td>
</tr>
<tr>
<td>Reasons for designation</td>
<td>Protection from hunting for thousands of resident doves, and nesting seabirds.</td>
</tr>
<tr>
<td>Responsible agency</td>
<td>NCWCD</td>
</tr>
<tr>
<td>Size and sectors</td>
<td>Between 0.25 and 2km².</td>
</tr>
<tr>
<td>Emirate(s)</td>
<td>The reserve is situated in the Mecca Emirate.</td>
</tr>
<tr>
<td>Central co-ordinates</td>
<td>19° 00’N, 41° 07’E</td>
</tr>
</tbody>
</table>
| Existing maps          | The reserve is covered by the following map:  
|                        | • Ministry of Petroleum and Mineral Resources 1:2,000,000: (1983) |
| Management plans       | None          |
| Tourism strategy       | None          |

| Natural Features       |               |
| Landscape              | The reserve consists of two small coral islets, surrounded by a coral shelf and shallow sea. The substrate is primarily fossil coral, with accumulated sands. |
| Climate                | Mainland records suggest a mean annual rainfall of 50-100mm, and mean annual temperature of ~30°C. |
| Water                  | The islets have no perennial fresh water supplies. |
| Vegetation             | Vegetation consists of dew-dependent and succulent plant communities; the first in dense thickets dominated by *Salvadora persica*. The succulents are represented by scattered herbs, including *Suaeda* and *Zygophyllum*. |
| Scenic values          | Low coral islets in tropical seas. |
| Key animals            | No mammal list exists for the area.  
|                        | The current bird list includes collared doves, egrets, herons and white-eyed gulls. |
| Probability of seeing top six key animals | Doves/seabirds 1 |
| Key sites              | Not applicable. |
| Key seasons            | Breeding seasons for resident doves and seabirds. |
Cultural Features

Traditional uses: Not known; possibly dove hunting and egg collecting.
Cultural importance: None.
Historical features: None.

PA Infrastructure

Border demarcation: Low-tide line.
Rangers/other staff: None.
Responsibilities of rangers: Not applicable.
Ranger chain of command: Not applicable.
Camps and other buildings: None.
Tracks and roads: The reserve has no tracks.
Other facilities: None.
Maintenance of facilities: Not applicable.
Other patrols: None.
Threats to integrity: Unsupervised landings, dove hunting, egg collection and disturbance.

Other Stakeholders

Local community identity: No human residents.
Local economic structure: Not applicable.
Local communities involvement: None.
Government ministry involvement: Formerly administered by the Ministry of Interior under national hunting legislation.

Regional Infrastructure

Nearest petrol supplies: Al-Qunfidah, ~20km away on the mainland.
Nearest over-night accommodation: Al-Qunfidah.
Nearest towns (150 km radius): Al-Qunfidah.
Distance to regional centre (Emara) :

Nearest national sealed road : Al-Qunfidah.

Regional tourist attractions : None

Regional tourism developments : None.

Summary Assessment Notes

Scenic and landscape : Low coral islets, with dense vegetation, but over a very limited area, nevertheless it has tropical Red Sea island character.

Wildlife : High density of doves and seabirds, but sensitive to human disturbance.

Cultural/historical : None.

Existing facilities : None.

Location and access : By private boat only, from Al-Qunfidah.

Sensitivity / security : Breeding birds sensitive to human disturbance.

Potential activities : Day visits to view birds.

Rating

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

Scenery : 2

Wildlife : 2

Cultural/historical : 4

Facilities : 4

Access : 3

Sensitivity : 3

Summed Ratings = 18

Ranking 10/12

Category Group 3: Unsuitable for tourism development in the medium to long-term.

Protected Area : 'Uruq Bani Ma’arid
Administrative features

Category: Natural Reserve; Resource Use Reserve

Date of creation: Declared 1994 (BOG).

Reasons for designation: Representative area of escarpment and dunes of the Rub Al Khali, and relatively intact habitat for reintroduction of gazelle and Arabian oryx.

Responsible agency: NCWCD

Size and sectors: Total area is ~5,000km², divided into three zones: the core Natural Reserve of 2,400 km²; a managed grazing zone, and a wider controlled hunting zone.

Emirate(s): The reserve is situated in the Najran Emirate.

Central co-ordinates: 19° 30'N, 45° 30'E

Existing maps: The reserve is covered by the following maps:
- Ministry of Petroleum and Mineral Resources 1:2,000,000: (1983)
- Landsat USGS images: 1:500,000: 218
- NCWCD map

Management plans: An action plan for the area was drawn up in 1997. This replaced a number of earlier draft management plans. Moves have been made to propose `Uruq Bani Ma’arid as a World Heritage Site.

Tourism strategy: The 1997 action plan for the area acknowledges the high tourism potential of the desert scenery and proposes the identification of sites for the erection of suitable tourist facilities.

Natural Features

Landscape: The north-south running Tuwayq escarpment marks the western edge of the protected area; this gives way to a narrow limestone plateau incised with vegetated wadis that drain eastwards into the gravel and sand inter-dune corridors. Parallel linear dunes up to 150m in height form the most distinctive feature of the area. Dune height decreases eastwards deeper into the true desert, and the inter-dune corridors narrow and disappear.

Climate: The area is arid and hot; mean annual rainfall is ~50mm, falling mainly in winter; mean annual temperature is around 26°C.

Water: The area has not permanent water sources. The ability of the substrate to retain moisture however, means that significant rain can have an effect on vegetation for up to five years subsequently.

Vegetation: The limestone plateau is largely barren, but the wadis support a variety of grasses and a dwarf shrubland community, with mature trees of Acacia. Annual plants are regarded as relatively unimportant compared to increased germination of perennials after rainfall. The red sand dunes are mobile and support few species.
Scenic values: The steep, high linear dunes of red sand create an archetypal Arabian desert landscape of great beauty.

Key animals: The following mammals have been recorded in the area: Rueppell's fox (*Vulpes rueppelli*), red fox (*Vulpes vulpes*); sand cat (*Felis margarita*), Caspe hare (*Lepus capensis*), Cheesman's gerbil (*Gerbillus cheesmani*), lesser jerboa (*Jaculus jaculus*), and feral dogs. Arabian oryx, idmi and reem gazelles have been re-established through a reintroduction programme. The current bird list contains around 120 species, including the Lappet-faced vulture, and migrant houbara bustards.

Probability of seeing top six key animals:
- Reem gazelle: 2
- Idmi gazelle: 2
- Arabian oryx: 1
- Sand cat: 4
- Lappet-faced vulture: 2
- Red/Ruppell's fox: 3

Key sites: None specifically.

Key seasons: Spring.

Cultural Features

Traditional uses: Camel grazing, and access route to winter grazing grounds in the deep desert.

Cultural importance: The Tuwayq escarpment marked the route for the southern overland spice trade from Yemen.

Historical features: Few within the actual protected area, but on the plains below the escarpment lies the ruins of the ancient trade route stop-over of Al-Fau, currently the site of on-going archaeological excavations by the King Saud University, Riyadh.

PA Infrastructure

Border demarcation: The escarpment marks the western edge. Other boundaries are unmarked but locally well known by landmarks and named inter-dune corridors.

Rangers/other staff: The reserve has a complement of around 20 NCWCD rangers, plus support staff, based in three camps: northern, central (main camp adjacent the main track up the escarpment), and southern.

Responsibilities of rangers: NCWCD rangers primarily undertake patrols of the reserve's boundaries and interior, and secondarily provide supervision of visiting groups, and assistance with broader monitoring and research programmes as required, including liaison with scientific staff and aerial patrols; maintenance of camps and reporting of incidental wildlife sightings; NCWCD rangers are not officially empowered to arrest or detain offenders, nor to confiscate property.
Ranger chain of command: Day-to-day management of rangers camp structures is carried out by the head ranger or his deputy, under authority of NCWCD head office staff in Riyadh.

Camps and other buildings: The three camps consist of portacabin and tent accommodation. The main camp has some crude out-buildings for kitchen and storage.

Tracks and roads: The reserve has no sealed roads. A graded track provides the main access to the protected area, from the Najran-Wadi Al-Dawasir highway.

Other facilities: Power is supplied by diesel generators. Water is trucked in. Petrol is obtained from stations on the Najran highway.

Maintenance of facilities: On-site maintenance is the responsibility of the rangers and their support staff of labourers ad mechanics, with support from local contractors and NCWCD in Riyadh.

Other patrols: Aerial surveys for camels and for reintroduced ungulates take place around once or twice per month, using the NCWCD aircraft based at the NWRC, In Taif.

Threats to integrity: Seasonal encroachment of camel grazing in the core zone.

Other Stakeholders

Local community identity: Principal tribes are the Al Dawasir and the Qahtan; 30% of the region’s population is nomadic or only semi-settled.

Local economic structure: Based on camel herding, and service for the main highway traffic.

Local communities involvement: Local people have been employed almost exclusively as rangers. Services such as petrol, diesel and food and water supplies obtained locally. The NCWCD maintain formal links with tribal leaders through a Contact Group.

Government ministry involvement: The Ministry of Interior assists with regulating access to the escarpment areas.

Regional Infrastructure

Nearest petrol supplies: A number of commercial petrol stations are situated along the Najran-Al-Dawasir highway, the nearest less than 20km from the main camp.

Nearest over-night accommodation: Reasonable overnight accommodation can be found at As Sulayl, about 150km to the north.

Nearest towns (150 km radius): As Sulayl (150km);

Distance to regional centre (Emara): Najran lies about 200km to the south.
Nearest national sealed road: <5 km from the main camp.

Regional tourist attractions: Najran has a flourishing tourist industry, exploiting relatively mild weather and some historical attractions.

Regional tourism developments: As above.

Summary Assessment Notes

Scenic and landscape: Spectacular and accessible red sand dunes, and escarpment views.

Wildlife: Reintroduced Arabian oryx are now the only truly free-ranging population of oryx in Saudi Arabia; reintroduced gazelles are also readily seen.

Cultural/historical: Nearby Al Fau is of major historical importance.

Existing facilities: Inadequate for anything other than day visits and self-sustained camping at present.

Location and access: The protected area itself is easily accessed, and while there are major highways to the area, these are some distance from major urban populations.

Sensitivity / security: Sensible visitors would have little impact on the dunes, but care must be taken during unsupervised travel in dune areas as it is easy for a vehicle to become mired.

Potential activities: Viewing of oryx and gazelles; camel treks into the desert; camping in the dunes and driven tours into the deep desert.

Rating

1 = highly suitable for tourism; 2 = moderately suitable for tourism; 3 = unsuitable for tourism at the present time, or with specialised or limited public appeal or capacity only; 4 = unsuitable for tourism in the foreseeable future.

Scenery: 1
Wildlife: 2
Cultural/historical: 2
Facilities: 3
Access: 2
Sensitivity: 2

Summed Ratings = 12

Ranking 5=/12
| Category | Group 1: High priority for tourism development. |
Source Material

Al-Khunfah

At-Tubaiq

Farasan Islands

Harrat al-Harrah

Ibex Reserve

King Khaled Wildlife Research Center

Mahazat as-Sayd

Majami al Hadb

National Wildlife Research Center

Raydah

Umm al-Qamari Island
Child and Grainger 1990; Fisher et al. 1998; Llewellyn, O. pers. comm.

‘Uruq Bani Ma’arid

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Chronological order by first author


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Meigs, P. 1953. Reviews of research on Arid Zone Hydrology. UNESCO. (Cited in Williams and Tieleman, in press.)


Robertson, F., Dunham, K. and Collenette, S. 1997. Report on a visit to At-Tubayq Protected Area. KKWRC unpublished report. 28 pp. (2)


Wells 1994


