

A Private Affair: Nature Reserves in the Hashemite Kingdom of Jordan

...and God has made the earth a wide expanse,
that you may traverse its open ways.

— *Qur'an: Surat Nuh (71), ayahs 19-20*

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

— *Qur'an: Surat al-An'am (6), ayahs 38*

The Qur'an asserts an exceptionally demanding environmental ethic, one the West has only begun to explore (Bagader et al. 1994; Forward and Alam 1994; al-Faruqi 1995, 53-56; Khalid and O'Brien 1992). Humankind is given the earth but is warned that all creatures are a "people like unto you" with the function to bear witness to God's majesty. Reality in much of the Middle East and North Africa, however, seems to mock Islam's environmental scruples. Forests, woodlands, and wetlands are gone along with their wildlife, while places that once supported pastures and fields are now entirely de-vegetated. There is silence where hunters once stalked their prey. Explanations for environmental degradation are many, but of greater concern is the seeming indifference of many Islamic countries to possibly calamitous environmental degradation. Nature, and its conservation, has been neglected in the face of nation-building, economic development, and regional geopolitical realities.

There are, however, encouraging signs of change in the Arab World's approach to nature conservation. In Jordan, this change is both obvious and dramatic. This paper reviews the origin, objectives and status of Jordan's nature reserves. Jordan has a rich and diverse natural and cultural environment which offers exceptional opportunities for conservation through the establishment of nature

reserves. The origin of Jordan's reserves are typically British-colonial, but the reserves and their administration have uniquely evolved to give major responsibility for conservation to a private organization. A policy context and administrative structure offering a secure management environment in which representative reserves can prosper along with allied conservation activities is

developing. As a result, Jordan is able to marshal an unusual mix of natural and institutional resources for accomplishing its goals, and is consequently becoming a regional leader in nature conservation.

Our discussion is based on eight weeks of field work in the summer of 1996 facilitated by the American Center for Oriental Research in Amman. During this time, we investigated the historical geography of Jordan's nature reserves as well as contemporary conservation and tourism policy. We systematically reviewed Jordanian planning documents, conducted structured interviews with both governmental and non-governmental personnel, and made site visits to the majority of Jordan's nature reserves. In the summers of 1997 and 1998, the senior author followed up on the data obtained in 1996 while he was engaged in archaeological excavations in Jordan.

The Country

Though having a long history of human occupation, modern Jordan was declared in 1946 upon termination of the British mandate established after World War I. King Hussein assumed the throne in 1952 and remained in power until his death in early 1999. His wife, Queen Noor, is a Princeton-educated architect. A large part of Jordan's progress in conservation is directly attributable to the active interest and strong support of the royal family,

particularly King Hussein and Queen Noor.

Comparable in size to Indiana, the biological importance of the 89,411-sq-km country rests in its topography and climate (al-Eisawi 1985; Feinbrun and Zohary 1955; Atkinson and Beaumont 1981; Hadidi 1985). From the eastern portion of the Dead Sea Rift Valley at 100 to 300 m below sea level, there is a steep and dramatic ascent to between 1,250 and 1,650 m and then a plateau descending gradually toward Iraq and Saudi Arabia. The climate of the most densely settled portions of Jordan, the western fringe of the plateau, is typically Mediterranean but of the driest type, with precipitation concentrated in cool winter months while the summers are hot and dry. Much of the Jordan Valley is subtropical, but 86% of Jordan is steppe and desert while only 14% is capable of supporting Mediterranean shrub and woodland, the majority of which is devoted to agriculture and settlement. Significantly, Jordan's topographic and climatic variety rests solidly in a transitional zone between three of the world's major biomes—Mediterranean, Irano-Turanian, and Saharo-Indian (Feinbrun and Zohary 1955, 5). The result of this location is a close proximity of species generally thought of as separated by continents. Cheetah and wolf, fox and hyena have hunted deer and gazelle in the same field, while birds from Europe, Asia, and Africa have soared above.

Several characteristics of Jordan's history and sociopolitical condition profoundly affect its ability to create and care for nature reserves. First, significant archaeological sites are practically ubiquitous and coincide predictably with biologically important sites. An oasis or wadi (i.e., watercourse) important to fauna and flora was undoubtedly important to Paleolithic and Neolithic man, to Ammonites, to Greeks and Romans, and Umayyad Arabs. Biological conservation is inseparable from the management of antiquities, and both are vital to Jordan's embryonic tourist industry. Second, Jordan has had to steer a difficult, and sometimes unsuccessful, course among powerful and frequently hostile neighbors. Geopolitical realities, most notably the 1967 Arab-Israeli War and the 1991 Persian Gulf War, have often distracted Jordan's attention away from important domestic issues, including conservation, while flooding it with refugees that give it a *de facto* population growth far in excess of its natural growth (Jordan Department of the Environment 1991, 149).

Foundation of Nature Reserves

Hatough et al. (1986) and Hatough-Bouran and Disi (1991) have reviewed the historical presence of megafauna in Jordan as well as its demise, but only a few studies have detailed the demise of individual species (e.g. the ostrich, Jennings 1986). The causes for environmental degradation are obvious, if complex

and incompletely understood. Overgrazing, which has literally de-vegetated large areas, is clearly the main culprit. Concentrations of stock supported now by watering and feeding programs have long exceeded carrying capacity, resulting in the virtual denudation of the eastern and southern steppe and desert to the extent that Jordan can no longer provide livestock for local markets cheaper than carcasses can be imported from Romania, Turkey, and Australia (Burnett et al., in press).

By the 1960s, the decline of natural conditions in Jordan had provoked environmental anxiety—a realization of the possibility of environmental catastrophe (Grove 1987). In reaction, the Royal Jordanian Hunting and Shooting Club, formed in the 1930s as an elite hunting and environmental club with restricted membership, reorganized itself as the Royal Society for the Conservation of Nature (RSCN) and began a career that would make it the leading advocate for, and administrator of, Jordan's nature reserves. Among its patrons was King Hussein. In 1963, the King invited an Englishman, Guy Mountfort, to conduct a survey of Jordan's biological resources (Mountfort 1965, 1974). The selection of Mountfort was fortuitous. A distinguished soldier with World War II service in North Africa, Italy, Burma, the Pacific, and Germany, he was also a successful and wealthy businessman as well as an avid amateur ornithologist. During his later life, he led eight expeditions to other

countries that would result in the founding of protected areas, and he was a founding member of the World Wildlife Fund. Mountfort's Jordan expedition, which included such distinguished personages as Julian Huxley, resulted in a proposal to create five national parks. Had these materialized, a large system embracing about 8.5% of Jordan would have resulted (Clarke 1979a, 7).

Clearly the highest priority among Mountfort's suggestions was Azraq, a 12,000-sq-km internal drainage basin centered on the Azraq Oasis and wetland. Here Mountfort envisioned a national park in excess of 4,000 sq km consisting of oasis, wetland, playa, and limestone and basalt desert, devoted to tourism, conservation, research, education, and demonstration and extension work among the Bedouin. Clearly its greatest importance, however, is as a watering point on the flyways linking Asia and Europe to Africa (Wallace 1982; 1983). On July 26, 1965, King Hussein proclaimed his intent to declare the Azraq National Park, and work began on creation of an Azraq Biological Station to be headed by a Scotsman, Bryan Nelson (Boyd 1966; Nelson 1985a).

Then Jordan was plunged into the brutal 1967 Arab-Israeli War, diverting it from domestic issues, including conservation, well into the next decade. Iraqi intervention in eastern Jordan stopped the creation of Azraq National Park, closed the Azraq Biological Station, and sent Bryan Nelson packing back to Scot-

land (Nelson 1996) and a distinguished career as a seabird ornithologist at University of Aberdeen. However, the station survived long enough for Nelson to complete research for a beautiful and authoritative book (1974) on the Azraq Oasis.

Post-war Conservation

In its initial conservation efforts, Jordan demonstrated a pattern like that encountered in other areas of British colonial influence (Grove 1987; MacKenzie 1987). Environmental anxiety based on the disappearance of game species developed, followed by a realization that action could and should be taken to relieve this anxiety. Local leadership turned to the imperial authority for scientific and administrative expertise, advice, and direction. In this case, the roles of the RSCN and King Hussein, and the imperial representatives, Mountfort and Nelson, are archetypal examples of the colonial approaches to conservation.

As the chaos of 1967 subsided, this pre-war pattern repeated itself, only in broader outline. With the continued patronage of King Hussein, the RSCN emerged as Jordan's leading advocate for conservation. Too, while Jordan still depended on leadership and technical assistance from the United Kingdom, imperial influence became indirect and legitimized by being channeled through an international organization, the International Union for the Conservation of Nature (IUCN). Under its sponsorship, the English-

man John Clarke inventoried Jordan for potential biological reserves. He brought to the task exceptional experience in Africa and the Middle East which he eventually (1981) turned into a doctorate in forestry at the University of Georgia. His report on Jordan (1979a) identified both potential areas for protection as well as a general outline of priorities for ac-

tion, and it constitutes official policy of both the RSCN and the government of Jordan to this day (Table 1, Figure 1).

Clarke (1979a) prioritized this list in descending importance: Azraq Wetland, Shaumari, Zubia, Mujib, Burqu, Rajil, Dana, Jabel Masadi, Rum, Abu Rukbah, Bayir, Jarba. The priorities were determined by

Table 1. Proposed nature reserves of Jordan.

Map Location	Name	Status	Area (sq km)	Land Type
1	Burqu	1, 4	950	eastern desert
2	Zubiya	2	12	Mediterranean Forest
3	Wadi Rajil	1	860	eastern desert
4	Azraq Wetlands	2, 5	12	oasis
5	Shaumari	2	342	eastern desert
6	Wadi Mujib	2	212	escarpment
7	Abu Rukbah	1	410	steppe
8	Wadi Bayir	1	440	eastern desert
9	Wadi Dana	2	150	escarpment
10	Jarba	1	40	steppe
11	Jebel Masadi	2	460	escarpment
12	Wadi Rum	3	560	southern desert

Conservation status: 1 = No action; 2 = Administered by the RSCN; 3 = Administered by several state and local agencies including the RSCN; 4 = Proposed biosphere reserve; 5 = Ramsar wetland

Sources: Clarke 1979a; Hatough-Bouran and Disi 1991; Jordan Department of Environment 1991.

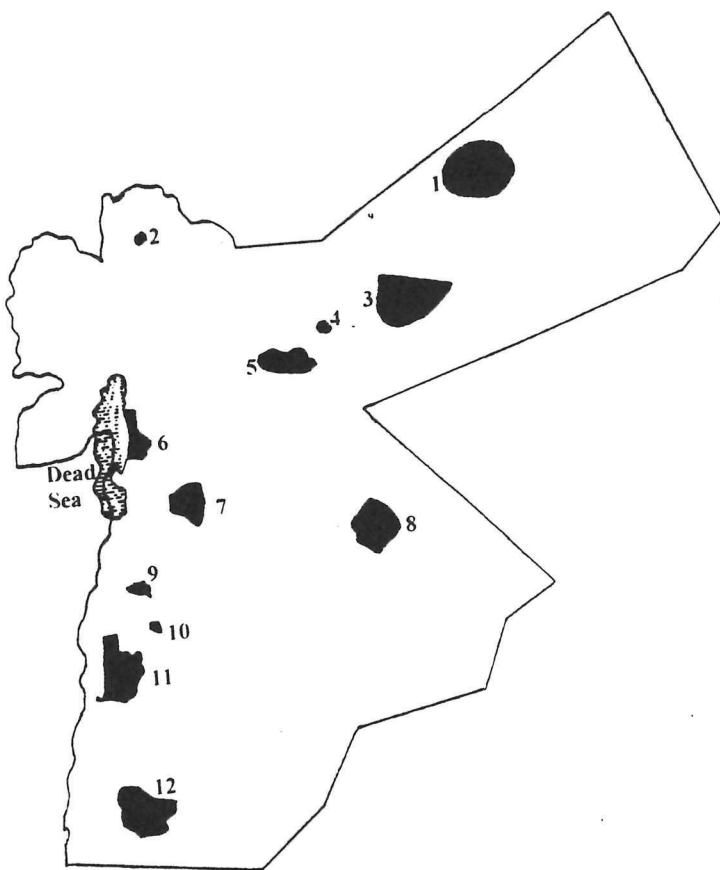


Figure 1. Location map of the proposed protected areas of Jordan. Map numbers are keyed to Table 1.

perceived risk to each area and by the perception of what would be the maximum conservation accomplishments achievable at a minimum of effort and costs. The RSCN has stayed close to the priorities but not slavishly. The Azraq Wetland has remained a high priority, while

Shaumari, Zubia, and Mujib are under RSCN management. Burqu and Rajil are both so far removed geographically from the threat of either development or tourist interests that they have not merited action. Burqu is, however, a proposed Biosphere Reserve and Rajil is a likely site for

wild release of part of the Arabian oryx herd now at Shaumari. Dana and Rum took on priority by virtue of opportunity, proximity to the tourist market, and social issues well beyond ecological consideration. Several of the areas are no longer realistic candidates for conservation. For example, significant oil shale deposits underlie Abu Rukbah, test drilling has been done, and production early in the next century is a virtual certainty (Shawabkeh 1991). Consequently, investment in the area for the purposes of conservation is pointless.

Clarke's list, reflecting the British enthusiasm for the hunt as well as the RSCN's history as a hunting club, gives preference to areas that provide habitat for game species, and Jordan has accomplished much in this arena.

It has established a large herd of Arabian oryx at Shaumari (Figure 2) (Clarke 1977; 1979b; Nelson 1985b). Extinct in the wild, the 200-member herd is breeding successfully and animals have been given to Syria. The RSCN has plans to release oryx in the wild, probably in Wadi Rajil, an area almost inaccessible by motor vehicle and where straying animals would most likely drift into Saudi Arabia which has effective game protection programs. At Shaumari, experiments with breeding and re-introduction of ostrich are underway, while a large herd of Nubian ibex (Figure 3) has been established at Wadi Mujib and release experiments are underway. Clarke's list, however, needs to be reconsidered with the objective of protecting Jordan's biological diver-

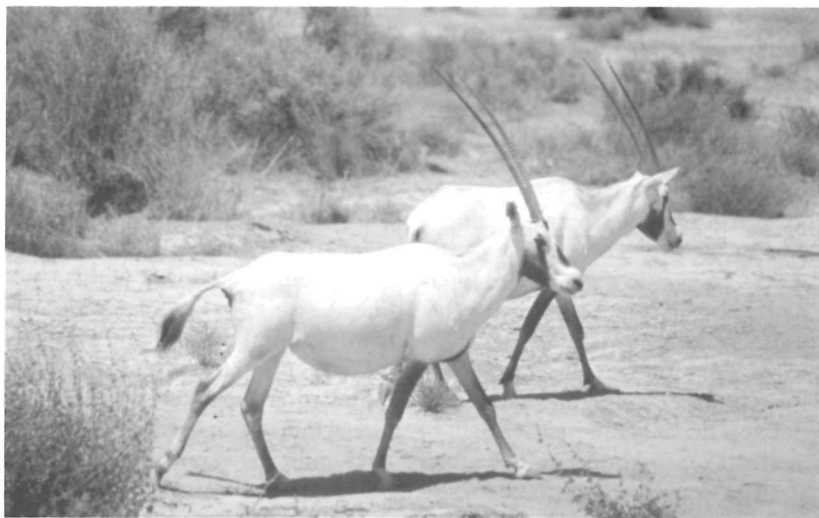


Figure 2. Arabian oryx at Shaumari Reserve. Photo: G. W. Burnett



Figure 3. Nubian ibex at Mujib Reserve. *Photo: G. W. Burnett*

sity, most notably its vegetation and smaller creatures. Realizing this, the RSCN has initiated, predictably under the auspices of the IUCN, a process of re-inventorying Jordan for potential reserves.

Organizational Changes

Jordan's journey toward creating a system of nature reserves is of immense interest to regional and international conservationists partly because of its success and partly because of its unique structure. With the IUCN encouraging nations to develop flexibility in management of protected areas, Jordan's distinctively privatized approach to conservation certainly demands attention. Jordan's Ministry of Agriculture is responsible for, among other things,

protecting, conserving and managing wildlife. In 1966 the Ministry recognized RSCN as being primarily responsible for Jordan's wildlife protection, and in 1975 vested it with the authority to enforce hunting regulations. As a private organization, the RSCN is governed by an elected board of directors and is supported by committees advisory to its specific activities. Until 1993, membership was available only by approval of the board and consisted of less than 0.05% of the adult population. Structured into operational units—conservation, education and public awareness, wildlife reserves, research and scientific affairs, hunting control, and heritage—the staff reported directly to the board's general director.

International recognition of the RSCN as critical in Jordan's conservation efforts has required review and reform of the RSCN's structure and administration, again under supervision of the IUCN. The resulting strategic plan (RSCN 1996) adopted this mission statement: "[T]o conserve and enhance wildlife and wildlife habitat whilst actively promoting an understanding of the natural environment, its protection and interdependence with people." To accomplish the mission, its organization was streamlined and decentralized. The RSCN was reorganized in six sections—research and surveys, reserves, wildlife enforcement, administration, awareness, and fund raising—under the direction of a full-time executive director accountable to the board of directors. The plan also set ambitious goals for membership expansion and public education.

Because of the strategic planning, two reserves have absorbed most of RSCN's time in recent years. The first is Dana Reserve. Extending from the Wadi Araba up to the crest of the escarpment, the rugged terrain shelters ibex, mountain gazelle, red foxes, badgers, rock hyrax, hare, and porcupine. At Dana, the RSCN has initiated research projects, improved its trails and provided a campground. But the crux of RSCN activity at Dana Reserve has been restoration of Dana village (Figure 4). Because of its springs, the village has certainly been occupied for thousands of years, but the current village

was built and occupied during the Ottoman Period. Floundering in snow at the broken crest of the escarpment, T. E. Lawrence describes "looking down across the chessboard houses of Dana village, into sunny Arabah, fresh and green thousands of feet below" (1991, 498). Unfortunately, this most charming hill village with its spectacular panorama had become derelict, a situation the RSCN set out to correct. The mosque was rebuilt, a guest house built, the irrigation works restored, village women taught new handicrafts from jewelry to soap-making, and their products marketed in Amman as well as Dana. The rejuvenated Dana village is a lesson in the natural environment's interdependence with people.

The second reserve that the RSCN has focused on is the Azraq Wetlands (Figure 5). At the end of the 1967 Arab-Israeli war, the Azraq Oasis opened to settlement and hundreds of wells were dug to irrigate crops as varied as olives and prickly-pear cactus. The water table fell from near the surface to 12 meters below and springs at the oasis dried up. At the Azraq wetlands, 'Ain Soda, the spring and pool that feeds the Dashsha Marsh, the 12-sq-km wetland, had reversed itself and become a drain. When water from geological sources was pumped into the pool, the pool developed leaks and would not hold water, even with the spring sealed. The Azraq wetlands, it was assumed, were no more.



Figure 4. Dana Village. Photo: G. W. Burnett

A reasonable, if not entirely satisfactory, design is being attempted to save the wetland. The 'Ain Soda spring and pool is admittedly sacrificed. Geological water is being

pumped directly into the wetlands, a series of channels that weave their way toward the center of the playa. Along its way, new pools to provide for bird habitat are being con-



Figure 5. Archaeological excavation, Dashsha Marsh pool, Azraq Wetlands. *Photo: G. W. Burnett*

structed. To rid the wetland of the plague of rank grass which now chokes it, and to restore something of its naturally grazed variety, a small herd of feral water buffalo imported from Syria is being introduced. The plan, well along its way to implementation, is subject to criticism in that an artificial wetland will replace

a natural wetland. The alternative, however, is no wetland at all, and its disappearance would mean the destruction of hundreds of thousands of migrating birds that depend on it. In implementing this project, the RSCN is transferring lessons learned at Dana by carefully integrating local economic and educational interests

into the project. The intended lesson, as at Dana, is that people are the ultimate beneficiaries of conservation.

Conclusions

Over the past 30 years, Jordan has engaged in attempts to conserve its biological resources through the establishment of nature reserves. In so doing, it has evolved an unusual approach by empowering and relying on a private conservation organization to do many of those things government generally does in other countries. Though unorthodox, the approach seems to be working and has much to commend it. Possibly the most surprising effect of Jordan's arrangement is the RSCN's almost obsessive desire to link its projects and activities to advancing the local

social, economic, and educational welfare. While many government conservation agencies profess concern for their neighbors, many of these confessions seem to lack sincerity. It is discouragingly difficult, though not impossible, to find examples of government-sponsored conservation actually benefiting local populations in substantial ways. The RSCN and its employees are not protected by automatic appropriations and civil service status. Accomplishing its mission, conservation, and indeed its survival as an institution, is directly dependent on its ability to relate conservation to human welfare. The result is a lean organization with a "fire in its belly," intent on conservation and bettering its neighbor's lives.

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