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Dana Nature Reserve: Jordan



BACKGROUND AND JUSTIFICATION

Jordan's main geographical features—the Jordan Rift Valley (including the Dead Sea basin), the forested highlands and the Badia or eastern desert—create a variety of very different ecosystems and environments. The country has four distinct biogeographic zones: Mediterranean, Irano-Turanian, subtropical African and Saharo-Arabian. At the same time, its geographical position at the crossroads of Africa, Asia and Europe has made it a centre for the extensive exchange of both natural and cultural resources. Its plentiful archaeological remains bear witness to a long and varied history that includes Egyptian, Hellenistic, Islamic and Roman influences and that stretches back into prehistory.

Today, 90 per cent of the land area is desert that is unfit for cultivation and most of the 4.5 million people live in the highland region where the level of agro-biodiversity is highest. As in many other areas of the world, however, population pressure, with its increased demand for natural resources, pollution, and the introduction of exotic species are among the factors causing a loss of biodiversity in Jordan. With habitats being destroyed and wild species becoming extinct, ways of protecting and sustainably using the remaining resources need to be developed.

DESCRIPTION

The Dana Nature Reserve, set up in 1989 and officially recognized by the Government of Jordan in 1993, is managed by the Royal Society for the Conservation of Nature (RSCN). Covering over 300 square kilometres in the Tafilah district of southern Jordan, about 200 kilometres south of Amman, the Reserve includes a wide range of different climatic and geographic zones, from hot, arid deserts to highlands with cold, wet winters, and altitudes that vary from 100 metres below to 1,500 metres above sea level. The first biological survey of the area was carried out in 1994 when 555 plant species were recorded. More recent surveys have identified 697 species of plant living within the Reserve, three of which are new to science. Among the most important of the park's plant species is the cypress (*Cupressus sempervirens* var. *horizontalis*), some specimens of which are more than 1,000 years old. Cypress forests used to be the dominant vegetation type of the eastern Rift Valley, but today, the Dana stand of 2,374 trees is one of the last in the region to survive. The Reserve is also home to over 40 species of endangered or vulnerable animal species, confirming its international conservation value.

An archeological survey, also carried out in 1994, found 98 sites of interest within the Reserve. Among the most important are a Nabatean copper mining centre at Feinan and a series of military remains from the Hellenistic to the early

Islamic period. Other sites are still being investigated, including what may turn out to be 20,000-year-old Paleolithic sites. These ancient remains reflect the fact that humans have used the land and its resources for millennia covering cycles of deforestation, intensive upland farming, the abandonment of agricultural land and its recolonization by forest and woodland, the introduction of pastoralism and the recent intensification of livestock grazing.

The Dana Nature Reserve project is being undertaken to:

- create a clear identity for the Reserve and its objectives among the local community and to protect it for national and international heritage, nature conservation, scenic and archaeological reasons;
- conserve wild species at viable population levels by minimizing human disturbance (e.g., hunting and the unsustainable use of natural resources) within the Reserve and its buffer zone;
- conserve the integrity of the habitat by monitoring and controlling key habitat parameters such as soil erosion and water and air quality;
- implement a Reserve zoning plan that defines different management objectives for different areas of the Reserve according to whether they are zones of exclusive conservation, special protection, wilderness, semi-intensive use or intensive use;
- manage grazing pressure through a

grazing scheme that prevents the further loss of habitat, soil quality and biodiversity;

- create beneficial links between the Reserve and local communities through development projects that limit detrimental human activity while generating income for local people;
- protect the cypress population from damage caused by human activity and the expansion of invasive, non-indigenous species;
- promote organic farming projects in order to prevent the spread of agrochemicals;
- involve the local community in the decision-making processes of the RSCN and ensure good communication between Reserve managers and local representatives;
- encourage sustainable tourism that does not damage the Reserve's habitats;
- ensure that local people benefit from sustainable tourism and are involved in ecotourism projects;
- promote further research to monitor the status of key habitats, species and their response to changing management conditions (including cooperating with national and international universities and research institutions);
- develop environmental education programmes at local schools in order to generate long-term support for the Reserve and for nature conservation in general; and

- achieve economic self-sustainability for the Reserve.

In order to achieve these aims, there is an ongoing programme of monitoring and control within the Reserve area. Different zones have been carefully mapped and rules developed to govern the activities that are permitted in each zone:

- *The exclusive conservation zone:* No visitors are allowed into this area, which covers 215 square kilometres—more than 80 per cent of the Reserve's total area. Bedouin herders are also gradually being excluded from this zone and only essential management activities are allowed (such as the monitoring of conditions, the pursuit of poachers and illegal grazers, and fighting wildfires). Research projects carried out in this zone must first be approved by RSCN.
- *The special protection zone:* This is a very small area of 2.5 square kilometres within the exclusive conservation zone aimed at providing maximum protection for the Reserve's valuable population of cypress trees. The zone is under the same management plan as the exclusive conservation zone, but even greater priority is given to protecting and guarding it.
- *The wilderness zone:* Only 135 visitors a day are allowed into this zone, which covers 29 square kilometres, about 9 per cent of the Reserve. It contains a campsite and three nature trails. The only vehicle

allowed is the shuttle bus that transports a maximum of 60 visitors a day to and from the campsite at nearby Rummana. This zone, which overlooks the exclusive protection zone, was created to enable visitors to enjoy some of the Reserve's most spectacular natural habitats, albeit from a distance.

- *The semi-intensive use zone:* Day visitors have free access to this zone, although only limited numbers can stay overnight and motorized access is strictly limited to private vehicles and school buses going to and from the Boy Scout camp and a tourist campsite. This zone covers an area of 25 square kilometres, 8 per cent of the Reserve's total. No infrastructure development is allowed and off-road driving is strictly prohibited, as is the use of existing dirt tracks. This zone contains the important Feinan archeological site and also enables visitors to come into close contact with local Bedouins and their traditional way of life. Other facilities include nature and archeological trails and information points.
- *The intensive use zone:* This zone includes those areas where the highest concentrations of visitors are expected and contains recreational and educational facilities, including a picnic site, a visitor centre, a car park, overnight accommodation, a cafeteria and sales points for local handicrafts. Part of this zone lies outside the Reserve itself, but RSCN is still responsible for its management.

Regular consultations with local people have also been important to the project's success. For example, during the establishment phase, there was a focus on awareness-raising campaigns targeted at the local communities. These included on-site public meetings, school visits and organized guided tours of the nature reserve. In addition, each implementation step of the programme involved its own awareness-raising activities targeted at the local communities, beneficiaries of the programme and the wider public in Jordan. These included television programmes, radio broadcasts and the publication of articles in newspapers, leaflets and in the RSCN magazine and on its web site. Such efforts have helped local people to understand the benefits of managing their natural resources sustainably. Management decisions are discussed with all interested parties and are modified on the basis of regular monitoring of their effectiveness and acceptability to local people. Meanwhile, cooperatives and other commercial ventures increase the income that people can earn from the area without putting the environment at risk.

LESSONS LEARNED

Experience gained from developing and managing the Dana Nature Reserve has proved that biodiversity can be conserved and utilized in a sustainable way if stakeholders such as governmental and nongovernmental organizations and local community efforts are coordinated and organized in efficient ways.

The integrated tourism development plan being carried out by the local community and the Reserve administration shows that it is possible to integrate biodiversity into tourism activities without any negative effects on the biodiversity within the Reserve.

Public awareness programmes and assistance to local people to enable them to derive benefits from biodiversity are effective tools that promote the involvement of the local community in protecting its environment and utilizing its resources in stable, sustainable ways. The involvement of the local community in the decision-making process from the initial planning stage to the implementation and management steps was proven to be the most efficient way to guarantee the participation of the local people, which was critical for the success of the project.

In conclusion, the most important lesson learned is that any project that contains a clear plan and takes into consideration the natural, social and economic status of the local community will have a greater likelihood of succeeding.

IMPACT

The Dana Nature Reserve has now become one of the most famous tourist attractions in Jordan. People visit it to see Dana Village, the wildlife (especially birds such as the Palestine sunbird, Smirna kingfisher and griffon vulture) and the archeological sites, and the Reserve is within easy reach of other

important attractions in southern Jordan. As a result, local people are enjoying the benefits of employment in the tourist



Dana Village

facilities as guides, rangers, campsite managers, cooks, cleaners and shop managers, etc. and also have an outlet for their handicrafts. For example, silversmiths design and create a range of jewellery based on the likenesses of the reserve's plants and animals.

FUTURE PLANS

As well as re-surveying the boundary map, future plans include: reviewing the grazing scheme in order to take as much account as possible of Bedouin herders' concerns; establishing a buffer zone around the Reserve with the collaboration of affected neighbouring communities; improving cooperation with Forestry Department staff in the area in order to protect the cypress and other forest areas as effectively as possible; acquiring the funding required to implement a watershed management plan that will help to prevent soil erosion; paying particular

attention to the protection of oaks, which are the most frequently felled and damaged trees in the Reserve; and establishing links with the Ministry of Tourism and Antiquities in order to foster archaeological research in the area and to protect archaeological sites from damage and looting.

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