

The Saint Katherine Protectorate

'People are living in the park'. Linking biodiversity conservation to community development in the Middle East Region.

The Physical Setting

The Saint Katherine Protectorate extends over virtually the entire mountain massif of southern Sinai, an area of 4,350 square kilometres. The Protectorate was declared in 1996 under the aegis of the Egyptian Environmental Affairs Agency (EEAA) and the European Union has granted a budget of approximately 9 million dollars to sustain an initial five-year development project for the Protectorate.

The Protectorate contains one of the most spectacular and resource-rich areas in the Middle East. It includes Egypt's highest peaks that support a unique assemblage of high altitude ecosystems, with a surprisingly diverse fauna and flora and a relatively high representation of endemic species. Within the protectorate there are numerous sites of enormous archaeological, religious and cultural significance, the best known of which are the Monastery of Saint Katherine dating from 330 AD and Mount Sinai or Jebel Musa. It is the only protectorate in Egypt with a sizeable resident population and a significant urban development within its limits a situation that presents both management challenges and opportunities.

The St. Katherine Protectorate lies in the arid North African belt and is characterised by a Saharan-Mediterranean climate. Though the altitude moderates the temperature regime, summers are relatively hot, with a mean maximum temperature of 36°C (August) while winters are relatively cool with mean minimum of -7.8°C (February). Saint Katherine has an arid climate with a mean annual rainfall of about 60mm/year compared to 13 mm

at El Tor some 50 km away on the western coastal plain. The higher peaks receive orographic precipitation, some in the form of snow, which can amount to 300 mm annually. Rainfall is sporadic but usually falls between October and May. Relative humidity is low, rarely exceeding 50%, and potential evaporation rates are very high – in excess of 20 mm/day during August.

Water supplies are very limited for both wildlife and people. In the crystalline mass small amounts of ground water are available only in shallow aquifers of wadi alluvium or in shattered dyke structures. These supplies were traditionally exploited by Bedouin digging wells arid require local precipitation for replenishment. Recent tourism development has resulted in a serious depletion of this limited ground water.

Biogeography

The Sinai Peninsular forms a land bridge between Africa and Asia and its flora and fauna reflects the influence of both continental masses though the Gulfs of Aqaba and Suez now pose effective ecological barriers. Four phytogeographic regions meet and overlap in Sinai; of these the Saharo-Arabian (desert vegetation) and the Irano-Turanian (steppe vegetation) largely characterises the central mountain block which covers most of Sinai south of parallel 29° N where St. Katherine Protectorate is located. This south Sinai massif is an isolated mountainous block composed largely of crystalline rocks and geologically is related to the Pre-Cambrian African plate and the Arabian

shield. The high mountains constituting the Protectorate form an island of central Asian steppe vegetation along with Irano-Turanian biota; Sinai's endemic species are largely restricted to this island along with relic populations of Palaearctic and Oriental species.

Flora

The mountains of South Sinai have been recognised as one of the important centre of plant diversity for the Saharo-Sindian (Irano-Turanian) region of the Middle East (IUCN 1994). Approximately 316 higher plants have been recorded within the Protectorate and of these 19 species are endemic. Local Bedouins use more than 170 species of plants to treat various medical disorders from colds, digestive problems and skin disorders to bites and stings (Bailey and Danin, 1981). Several species have properties that have attracted international medical interest e.g. *Cleome droserifolia* is being investigated pharmaceutically for the treatment of diabetes. The value of the medicinal plants and associated indigenous knowledge has been internationally recognised; in 1999 UNDP presented a proposal to the Global Environmental Facility (GEF) for the conservation and sustainable use of medicinal plants in the St. Katherine.

Fauna

The natural fauna in the Protectorate is relatively species poor and only 25 mammal species have been recorded, seven of which are bats. The large mammals that are often used as flagships species for conservation purposes are particularly rare within the Protectorate. With the exception of the red fox which is very common, as it thrives near human habitations, the conservation status of all carnivore species is uncertain though the Sinai leopard is now, almost certainly, locally extinct. Nubian ibex exist throughout the mountains of the Protectorate in low numbers and small, relict populations of dorcas gazelles remain in isolated areas. Due to habitat diversity a unique assemblage of birds is found in the Protectorate. The reptile fauna is relatively rich though only one endemic and one near endemic are known to occur.

The high mountains of southern Sinai are one of the most interesting places in Egypt for insect life. There are more species of butterflies here

than in any other part of Egypt; two species are found nowhere else i.e. they are endemic and one the tiny blue *Pseudophilotes sinaicus* is probably the smallest butterfly in the world.

People and Culture

Sinai is the geographic and cultural bridge between Africa and Eurasia; it was probably the route taken by the first hominids when their earliest groups left Africa more than one million years ago. There is evidence of human occupation in Sinai from the Lower Palaeolithic period Agriculture appears to have developed in the region between the 15th and 4th millennia BCE with increased domestication of plant crops and livestock evident during the Chalcolithic period (4,000 to 3,100 BCE). Substantial human activity seemed to have ceased in the region from this time until the Iron Age (1,200 BCE) when until the end of the Byzantine period (640 CE) human occupation was extensive. A steep decline in the population occurred, following the Arab conquest in 640 CE and until the beginning of the 19th century the Sinai was dominated by nomadic populations of mixed descents, many migrating from the Arabian Peninsula.

More than 7,000 Bedouin belonging to six tribes, the Awlaad Sa'iid, Garasha, Jabaliya, Muzayna, 'Alaygaat, and Suwalha, now live within or close to the Protectorate's borders. One tribe, the Gebeliya, comprised of about 1,500 persons, has played an integral part in the life of the Monastery since its beginning. The Gebeliya are descendants of peoples from Macedonia sent to Saint Katherine by Justinian to build and protect the Monastery in the sixth century AD. Over the years the monks and the Gebaliya have established a symbiotic relationship. The Bedouin are a conservative people with a rich culture and an enviable reputation for hospitality who possess a profound knowledge of their land. Many Bedouin men work mainly in tourism enterprises' as guides or cameleers, though some continue to cultivate mountain gardens. The women herd the livestock and produce traditional craft items.

Around 1,000 other people, mainly itinerant government workers and their families from the Nile Valley, live in the urban area of St. Katherine that has a population of about 2,300.

Significant urban planning problems persist that are compounded by poor support services for solid waste disposal and sewerage.



Tourism and Threats

The Protectorate has enormous national and international significance but its natural resources and cultural heritage are at risk of long-term damage from unsustainable development pressures. The Saint Katherine Protectorate abuts the coastal reserves of Ras Mohammed National Park and the Nabq and Abu Gallum Managed Resource Areas that lie along the Gulf of Aqaba. The terrestrial Taba Protectorate lies to the northeast. Sinai's coastal areas are the main attractions for the mass tourism industry that has become a mainstay to the Egyptian economy. The coastal resorts are among the fastest growing tourism developments in the world and the relative proximity of the Saint Katherine monastery and Mount Sinai to these locations has resulted growing number of visitors to these sites and to other parts of the Protectorate. There is a daily average of 700 visitors to the Monastery and its immediate area but on frequent occasions this can rise to nearer 3,000. Each day several hundred people climb Mount Sinai, mainly to view the sunrise, and the impact on this sensitive site is considerable.

Unplanned developments in the area, coupled with this rapid expansion of tourism, threaten to undermine the Protectorate's intrinsic values. The major threats arise from a combination of inappropriate urban development, expanding resident populations and migration to the area, life-style changes, and institutional planning deficiencies. Evident symptoms are development impacts on the landscape, localised overgrazing, over-collection of shrubby plants for fuel, damage by safari vehicles, the depletion and contamination of the limited ground water supplies, unsanitary waste disposal, and the socio-economic marginalisation and acculturation of the local Bedouins.

Management Planning For The Protectorate

In response to this situation the EEAA has instituted a management regime for the Protectorate that is designed to ensure the conservation and sustainable development of the natural and cultural resources of the Saint Katherine Protectorate and bring local and national benefits to the people of Egypt. At the outset management has been broadly guided by the following general objectives:

1. To safeguard the resource base for sustainable tourism in Southern Sinai

2. To support the development of a national system of protected areas in Egypt

3. To demonstrate the economic importance of protected areas as part of-the national land use plan.

As early management interventions in the Protectorate have started to mature and the institutional capacity has strengthened, management now requires a more prescriptive base. An integrated resource-management plan for St. Katherine Protectorate is under development that is designed to provide guidelines for the myriad conservation management issues within the context of the Protectorate's overall objectives. The plan will be considered effective when it can be shown to contribute to:

- The implementation of a participatory management system that benefits all partners.
- The conservation of natural areas and their contained biodiversity.
- The management and sustainable use of the Protectorate's natural resources.
- The rationalisation of all conflicting uses within and around the Protectorate.
- The establishment of the Protectorate as a valued element in the economic development, of Southern Sinai especially in relation to local communities.
- The maintenance of the area's economic potential and the mitigation of negative impacts resulting from development activities.
- The conservation of the cultural heritage and the protection of traditional rights and;
- An improvement in the living in the conditions of local people.

However a range of pressing issues within the protectorate have necessitated early management responses that anticipate the detailed management plan. Biodiversity conservation activities have concentrated mainly on base fine surveys and the establishment of monitoring programmes for the flora and fauna. Initially the major concern has been the impacts of unsustainable development activities and substantial efforts have been directed towards instituting a sustainable development plan for St. Katherine town and a sanitary system for solid waste disposal, and regulating the extensive quarrying industry in the area. Considerable attention has also been given to visitor management and public awareness issues with the development of interpretative trails, nature guides, interactive CD ROMs and a Visitor Centre.

However the participatory element for the establishment of the St. Katherine Protectorate has become the most complex and the most impor-



tant aspects of the planning process. The emerging success of the participatory approach was a major reason for UNDP's attraction to St. Katherine Protectorate as the site for the proposed GEF project investigating the sustainable use of medicinal plants.

Participatory Planning and the Bedouin Support Programme

Almost everywhere the relationship between protected areas and the indigenous people has proved difficult. However from the outset an overriding assumption, in the management planning for the St. Katherine Protectorate, was that local people, tourists and native biodiversity could co-exist. Though this has become an increasingly common-held belief, it has remained largely untested in the Region particularly in an area the size and complexity of St. Katherine. A second guiding principle has been that the people most dependent and associated with the Protectorate's resource base are the best stewards for these resources and, as such, should be enabled to manage their own resources locally. It was further accepted that as such local communities may have to restrict their activities, and so pay the opportunity costs for conservation, they should be entitled to share tangible benefits from the management of the Protectorate to offset such costs and ensure their support. On the other hand, sustainable use opportunities for local people could be increased.

The project's inception in 1996 was marked by the commissioning of a multidisciplinary research team to engage in wide ranging discussions with Bedouin to discern their perceptions and use of natural resources, to understand their traditional and present roles and responsibilities as resource managers and obtain their views on the establishment of the protectorate. The team was also tasked with identifying mechanisms to utilise traditional knowledge and cultural systems and to integrate local communities into the management structure of the protectorate. The intention was not to seek comprehensive baseline data, but rather to focus on those topics most relevant to the lives of people living in this protected area. The investigations did not take on a highly structured form, but were based on a participatory action research (PRA) approach (PMU, 1996).

A gender-balanced team of Egyptian and international anthropologists, a community development specialist, a paediatrician, local Bedouin *rafiqs* and EEAA staff, spent more than a month

conversing with tribes people throughout the area. Drawing on local knowledge and tribal law, the Bedouin came up with suggestions for integrating local resource needs into the management of the Protectorate and plans to balance relations among themselves and the growing numbers of tourists. For community development deeply practical needs were expressed ranging from providing various social services, expanding alternatives for socio-economic development, promoting community development initiatives. Specifically requests centred on – more jobs, income generating activities, better medical care, help with wells, agriculture, pest control and electricity supplies.

The Protectorate development project was not envisaged as a rural development project *per se* that would intrude on the mandate, or replicate the efforts, of other agencies. However, it was anticipated that the Project could act a catalyst for other agencies involved in rural development activities. The scope of community development activities was necessarily limited by budgetary and institutional constraints, and any activity had to be unambiguously linked to the overall conservation objectives of the Saint Katherine Protectorate. Using the project's intervention logic, the mission, in partnership with various stakeholders, identified those activities that could be scheduled under this programme and a direct budget constituting nearly 17% of the total project funding was allocated to the needs of local people. The end of the inception mission was marked by an unprecedented event when more than 125 Bedouins, representing all the tribes, clans and settlements, were invited to an open-air *majlis* (meeting) to discuss and celebrate the project's Bedouin initiatives. The team reported on what it had learnt from them and how this input had shaped elements of the protectorate's action plan for the next five years; this interaction resulted in the development of the 'Bedouin Support Programme' (BSP) as a mechanism to assist community development.

Subsequently various community development activities were initiated through the BSP. As well as the preferential training and employment of local people in the Protectorate, these activities include the delivery of a primary health service to remote settlements, the provision of veterinarian care and advice, the construction of small catchment dams and access tracks, and the promotion and support of traditional crafts production for income generation. Primary health care was not an issue that could be directly linked to the protectorate's objectives but it was a high priority for all the



Bedouin and as such could not be ignored if credibility was to be maintained. Where appropriate these activities are conducted in close coordination with relevant authorities; for instance the Protectorate's medical staff are fully integrated into the Ministry of Health's programme and supplement its role in the remoter parts of the Protectorate.

Though most elements of the BSP are inexorably linked, the two most significant BSP activities in terms of their contribution to biodiversity conservation have been the employment of 'community guards' and the promotion of Bedouin managed eco-tourism.

Community Guards

A major concern of the Bedouins was that their traditional responsibility as the resource managers in the area should be acknowledged and exploited. The conservation ethic is deep rooted with the tribal system of *al-hilf* ('the agreement') to control seasonal use of pasture, or personal action *dakhl* ('essence') normally to protect trees. These systems were enforced by tribal law (*'urf*) so when a person pledges to uphold a principle that all tribes people regard as just, acting against it violates both his personal honour and *'urf* itself. Though the traditional conservation systems are now largely vestiges of the past, *'urf* still applies and during the inception mission several Bedouin claimed a traditional responsibility for wildlife protection in some areas.

The Bedouin have constantly stressed the importance of using *'urf* to assign responsibility for nature protection in specific areas to individual men who were *'ahl al-makan*, i.e. resident or frequent users of those places. These *haris al-biyah* (community guards) would have to be employed full time by the Protectorate to patrol and work in designated areas as, it was argued that, only this level of responsibility would make any violation of conservation regulations by tribal people a violation of *'urf* laws and personal honour.

In response the Protectorate management has invested 24 men to date, on full salaries, with the authority of a community guard. All have been nominated by their own communities, and endorsed by their tribal sheikhs before they are recruited; it is anticipated that a total of about 30 community guards will be finally appointed within the Protectorate. Though they have received some training to perform conservation tasks their role extends equally to community animation, explain-

ing and seeking ideas and support for other BSP activities within their home districts. The community guards bring their communities perspectives to the process of management planning and also give advice on specific programmes and activities.

It is too early to fully judge the full benefits of the community guard programme to biodiversity conservation though there are some qualitative indications, such as more frequent sighting of wildlife. Undoubtedly the presence of community guards has been effective as hunters have been intercepted, illegal quarrying and dumping reported, wildlife species recorded, and monitoring sites have been undisturbed. In specific areas the community guards have been instrumental in initiating active conservation measures. For instance an Acacia regeneration programme involving local communities to grow and plant the seedlings, has been started with the initiative of community guards in the south of the Protectorate.

In addition the community guards are the critical element of the protectorate's workforce in terms of their skills for trail maintenance, building with natural materials, mountain rescue and as guides for patrols. They are also responsible for organising the cleaning of backcountry trails and water sources and monitoring the behaviour of local guides and visitors. As well as the community guards the Protectorate preferentially trains and employs local people, as plant operators, builders, mountain cleaners and stone-sign carvers. At present more than 60% of the Protectorate's staff are local Bedouin and this percentage will rise to more than 70% when the full staff complement is recruited.

Bedouin Managed Ecotourism

The protection of the area's unique natural and cultural values was the Egyptian Government's primary goal for declaring the St. Katherine Protectorate but a wider national objective was to underpin and expand the tourist industry in Sinai. A close examination of the tourism sector in south Sinai revealed that there were significant opportunities for enhancing the quality of tourism and its revenue stream through developing environmentally and culturally sensitive forms of tourism in premium wilderness areas. The obvious target is the growing adventure-tourism market and the culturally curious travellers, which operate at lower capacities but have higher margins than the mass-tourism market. This would have the advantages of attracting a new market to



Sinai's, rather than simply diversifying the present client base, and which by its nature has a concern to protect the area's intrinsic values.

The earlier BSP inception mission had concluded that an effective way to direct benefits to local people would be to link sustainable tourism with local community development thereby making conservation an attractive option to rural people. This would allow the Bedouin to continue a lifestyle of choice and, for visitors to have Bedouin-mediated experiences of the cultural and natural features that make the St. Katherine area unique. A feasibility study has concluded the viability of the proposal and on this basis a model Bedouin-ecotourism enterprise has been designed. This will entail the refurbishment of two abandoned Bedouin villages as eco-lodges situated on interconnecting mountain trails in premium backcountry areas, and the construction of a Bedouin managed tourism office with outside communication.

The EEAA is now establishing a partnership with the Egyptian Social Fund for Development (SFD) to implement the proposal; the SFD is formally mandated to develop employment opportunities throughout Egypt, particularly through small enterprises, and will bring the appropriate resources for institutional training, financial management and promotion to the project. The tourism enterprise has the potential to catalyse local community development initiatives as well as directly promoting local employment and associated income generation activities. If it proves successful this Bedouin ecotourism model may be replicated elsewhere and so demonstrate the benefits of conserving the natural landscapes and their contained biodiversity.

Conclusion

Biological diversity has increased over geological time, with occasional setbacks through mass extinctions, and the world's biodiversity is richer now than at any time in its evolutionary history. At the same time, global biological diversity is being lost at a rate many times faster than ever before (Heywood & Watson 1995). There have been five,

mass extinctions over the past 600 million years caused by cataclysmic environmental changes; fossil records indicate these extinction spasms took place several million years. A sixth major decline now underway, as a result of human activity, is taking place over a few hundreds of years (Wilson 1992), ten thousand times faster than the natural or background rate. The same fossil record also shows that recovery periods following these extinction spasms of biodiversity have been of the order of 10 million years. In the immediate aftermath of a mass extinction, there is a serious depletion of the available ecological niches in which specialist organisms can exploit. The result is that generalist species, cockroaches, rats and agricultural weeds fill the gaps. It is a sobering thought that during the inevitably extended period of recovery from the current mass extinction, people will only be able to survive by exploiting those organisms and productive systems that endure; that is if man survives for longer than the 2 million years which is the average existence span of a typical mammal.

Concurrent with biodiversity loss the world's human cultural diversity is rapidly disappearing as indigenous people are displaced or acculturated, languages forgotten and traditional and other forms of knowledge relating to biodiversity are lost forever. Human cultural diversity and biological diversity are intimately connected. It is apparent that biological diversity in agricultural systems was higher in earlier times and has been reduced considerably as the numbers of world's different cultivators and their variable types of agricultural technologies have declined.

The emerging global strategy for biodiversity conservation espoused by the Convention on Biodiversity has the central precept that biodiversity can be conserved only through a broader effort to promote and sustain human welfare. This same tenet has shaped the management philosophy for St. Katherine Protectorate whereby in the exploration of local solutions to local problems, participatory mechanisms have been sought which blend local indigenous rights, knowledge and practices with a scientific approach to conservation that is ecologically sound and economically beneficial.

