

Volume 11, No. 1, 1986

PARCS PARKS PARQUES

International Union for Conservation of Nature and Natural Resources

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Unión Internacional para la Conservación de la Naturaleza y de los Recursos Naturales

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Union internationale pour la conservation de la nature et de ses ressources



Commission on National Parks and Protected Areas
Commission des parcs nationaux et des aires protégées
Comisión de Parques Nacionales y Areas Protegidas



PARKS PARQUES PARCS

An international journal for managers of national parks, historic sites, and other protected areas

Una revista internacional para directores de parques nacionales, campos arqueológicos y otras áreas protegidas

Revue internationale pour gestionnaires de parcs nationaux, de lieux historiques et autres lieux protégés

Editor: Tony Mence

Parks, IUCN Conservation Monitoring Centre, 219(c) Huntingdon Road, Cambridge CB3 0DL, UK

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Aims and objectives

PARKS is a practical journal for technical and management personnel dealing with natural, historical and cultural values of national parks and other protected areas. It covers all aspects of the planning, use and operation of these areas throughout the world. The aim of PARKS is to promote more effective management of protected areas and to facilitate communication between protected area managers worldwide.

Published by Science and Technology Letters on behalf of IUCN

Executive Editor: Sara T. Nash

Prepared and published with the support of WWF; UNESCO; Parks Canada; U.S. National Park Service; Department of Lands and Survey, New Zealand.

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Library Subscription: £40/\$60 from Science and Technology Letters, 12 Clarence Road, Kew, Surrey TW9 3NL, England; in the USA: Science Reviews Inc. 707 Foulk Road, Suite 102, Wilmington, DE 19803.

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Editorial

In signing off her editorial in the last issue of PARKS (Vol. 10, no. 3), previous editor Jean Packard said “. . . there seems to be no alternative but to accept what we hope will only be a hiatus in the publication of PARKS . . .”

With this issue begins a new journey for PARKS. Its publication has been moved from the United States to the United Kingdom. It has a revised Editorial Board, consisting of the Vice-Chairmen of the Commission on National Parks and Protected Areas, together with colleagues who have professional publishing experience. It has the support of IUCN's Publications Desk as well as its Conservation Monitoring Centre. It has a new Editor-in-Chief with considerable experience in natural area management and long association with IUCN. PARKS owes its renewal to many people: in particular to Dr Gary Wetterberg, who prepared the report which resulted in a Resolution by IUCN's General Assembly in 1984 supporting its continuation.

We are deeply indebted to the World Wildlife Fund and the US National Park Service for their valuable assistance in rejuvenating PARKS. They cannot, however, continue to provide the cornerstone of support. It is essential that the journal's financial base be broadened, and we call on you—our readers—to help us in this.

We believe that PARKS should be a vehicle for reporting *your* successes, airing *your* problems, discussing *your* techniques and giving *your* opinions, as well as an organ for disseminating information about philosophies, research and methodologies which have relevance for field managers. We hope that the correspond-

ence section will be widely used for seeking and exchanging information and views. With a future issue we intend to circulate a questionnaire asking your help in making PARKS as useful to you as possible.

Although the title appears on the cover of this new series in three languages, the first few issues will be in English with a section devoted, as a condition of a funding grant, to articles in Spanish with French and English summaries. The English articles have French and Spanish summaries. It is, however, our policy that separate editions in English, French and Spanish be issued when funds so allow, and the present arrangement is, we hope, only a temporary one; albeit with no immediate prospect of revision.

We have considered carefully the format and presentation of PARKS, and have decided to choose the cheapest methods consistent with a reasonable product. Indeed, we have no alternative if we are to devote as much as possible of our limited budget to ensuring that PARKS reaches those to whom we believe it to be of most use—protected area managers in the field; especially those in developing countries who may not have access to much technical literature.

We hope with your help to get PARKS established once more as a useful and important source of ideas, news and views for those charged with the responsibility for looking after the areas of our natural and cultural heritage so important to us all.

TONY MENCE (*Editor*)

Foreword for the new PARKS

This first issue of the “new” PARKS contains a selection of articles which deal with the key question of integrating the management of protected areas with other forms of rural land use. Park managers around the world recognize that although protected areas are often viewed as islands in isolation from their surroundings, they are subject to many outside influences and, in turn, affect neighbouring lands. These relationships may be primarily ecological or physical, but also include cultural, social and economic considerations. Protected areas are not established to remove them from the mainstream of development but rather constitute a form of land-use that must be complementary to their hinterlands if they are to survive.

The World Conservation Strategy stresses the need to integrate conservation with regional development. In addition, Objective 5 of the Bali Action Plan aims: “to promote actively the linkage between protected areas and appropriate sustainable development”. If protected areas are to be part of the pattern of land use covering a much larger area than the park or reserve itself, they must be managed as such.

This issue of PARKS presents examples from Africa and Asia to illustrate some of the positive and negative relationships that may exist between a protected area and

adjacent lands and suggests how the conflicts can be reduced and their benefits to local communities enhanced. The papers also demonstrate how the security, support for and appreciation of protected areas can be strengthened by underlining and further developing their contributions to the regional development process and forging links of mutual interdependency with other departments and agencies.

As demands for efficient and immediate utilization for natural resources increase worldwide, particularly in tropical countries with fast-growing populations, the need for protected areas must be clarified. To survive these pressures protected areas must be justifiable in both biological and socio-economic terms. Since government officials and the public generally undervalue the role of protected areas in environmentally-sound development, protected areas should be designed and managed in ways that bring real benefits to local and national human communities. This issue portrays how park management agencies in various countries are rising to meet the challenge.

H. K. EIDSVIK (*Chairman*)

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IUCN Commission on National Parks and Protected Areas

Protected areas and local populations in Kirthar National Park, Pakistan

W. A. Kermani and Khan M. Khan

Kirthar National Park, one of Pakistan's most important protected areas, is an excellent example of how species can rebound from extreme over-exploitation to reach levels which are once again productive. The Kirthar region has been occupied by people for thousands of years, but only with the introduction of firearms did the wildlife begin to decline. In order to reverse this decline, the cooperation of local officials was sought through appealing to their self-interest. Interest from the highest officials in the central government has resulted in a new development plan for the park.

El Parque Nacional de Kithar, una de las más importantes áreas protegidas de Pakistan, es un claro ejemplo de cómo las especies pueden pasar de haber sido tremendamente explotadas, a alcanzar de nuevo niveles productivos. La región de Kirthar ha sido habitada por el hombre durante miles de años, pero solamente fue con la introducción de las armas de fuego cuando la vida silvestre empezó a decaer. La cooperación de los mandos locales sólo se pudo conseguir por medio de satisfacer sus propios intereses.

Kirthar National Park, une des plus importantes régions protégées de Pakistan, est un exemple excellent du changement de la surexploitation extrême aux niveaux qui sont encore productifs. La région de Kithar s'est occupée par l'homme pendant milles d'années, mais le nombre des animaux commençait à diminuer seulement quand on a introduit les armes de feu, on a demandé la coopération des fonctionnaires locaux par appelant à leur intérêt personnel. L'intérêt des fonctionnaires les plus importants du gouvernement central a résulté dans un nouvel plan de développement pour le parc.

Introduction

The Kirthar National Park (308,733 hectares) is in south-west Pakistan, comprising the south-east extension of the Kirthar Mountain range west of the Indus river. There are 93 villages within the park area with a human population of 10,500. The domestic stock population is about 11,000 cattle, 28,000 sheep, 44,500 goats and 3,000 camels. Karachi is 58 km by road from the park, while Hyderabad is 72 km away. The park has just two stretches of metalled roads, namely 80 km from Karachi and 56 km from Hyderabad. Travel elsewhere within the park requires four-wheel-drive motor vehicles.

The vast majority of land area belongs to the Government, with 637.95 km² being under cultivation. Some 440 km² has the status of protected forest under the Forest Act whereby acts, such as felling of trees, are prohibited. The park area is also a wildlife sanctuary under the Wildlife Protection Ordinance 1972 which prohibits killing, trapping and hunting of wildlife. Adjacent to the park about 8 km to the east, is the Surjan, Sumbak, Eri and Hothiano Mountains Game Reserve where controlled hunting is permissible.

The park consists of hill ranges separated by fairly wide undulating valleys. The highest altitude within the park occurs at Karchat Mountain at 1,004 m a.s.l. and the lowest altitude at the Hub Dam at 70 m a.s.l. There are no perennial rivers in the park. However, drainage of rain water is provided by Baran Nadi via the Indus and Hab rivers into the sea.

There are four distinct climatic seasons with an average annual rainfall of 15 cm. Mean annual temperature is 39° C in summer and 5° C in winter. The principal geological formations within the area are calcareous limestone. Sandy limestone, shale, sandy shale and grey sandstone occur throughout the range. Some stages of these formations are rich in fossils.

Underground water, which has been tapped in many places, is brackish under the limestone formations and fresh under sandstone formations.

This zone is an arid region and dominant vegetation in the park is composed of open communities of deciduous, xerophytic trees and shrubs. In the rainy season there is profuse regeneration of ephemeral vegetation and summer annual grasses. The characteristic vegetation communities depending on soil types are *Acacia nilotica*, *Indigofera oblongiflora*, *Ziziphus nummularia*; *Capparis aphylla*, *Prosopis spicigera*, *Commiphora mukul*; or *Euphorbia caudicifolia*, *Grewia tenax*, *Acacia senegal*.

The park has 26 species of mammals, 58 species of birds, and 23 species of reptiles. The most interesting among the mammals are ibex, wild sheep or urial, gazelle, leopard, jungle cat, desert cat, wolf, desert fox, striped hyaena and the Cairo spiny mouse.

Among the birds the most interesting are the grey partridges, seesee partridge, three species of sandgrouse, Bonelli's hawk eagle and Egyptian vulture. The most spectacular of all is the annual winter visitor, the houbara bustard which is heavily persecuted elsewhere in the country but is protected in this park.

Kirthar National Park is also rich in archaeological and geological sites. The famed Rannikot Fort, at the northeastern tip of the park, represents a remarkable example of the defence system of the late Muslim rulers of Sind. The ancient carved stone tombs at Taungus are comparable in the mode of their construction and ornamentation to those at Makli hills in southern Sind. Prehistoric remains of habitation near Koh-Tarash cover a spectrum of our national history ranging from pre-Islamic to even pre-historic period (3500 BC). The geological history of this area dates back at least 45 million years.

History of the Park

Kirthar had the distinction of being the first national park in Pakistan to be recognized by IUCN in 1975. This region

is of particular interest because, while it never suffered from over-population (though it has supported a permanent human population for at least 100 years), it had always remained an attraction to hunters. Those who used bows and arrows left little mark but the gun-bearing "civilized" men exercised a tremendous influence over the area because they took pride in the number of animals bagged and the size of trophies. Incessant pressure of hunting in the pre-independence days was followed by a post-independence era when the people acquired more guns and the familiar story of too many guns chasing too few animals inherited by an independent country. The local population, poor as they were, considered the hunters as welcome visitors who supplemented their income.

When the Government of Pakistan realized how pressing and urgent was the need for wildlife conservation, the Kirthar area, containing interesting wildlife species and relatively sparsely populated by human beings, was considered the first priority and the pioneering work of conservation was started.

The first important step was to take the people in confidence, enlist their support, win their sympathies and arouse an interest and pride in their valuable heritage, without which nothing could be achieved or accomplished. Initially the Chiefs of the dominant local tribes were approached, a programme of conservation was laid out before them, the benefits that were likely to accrue to their people were set forth and the importance that they themselves would assume under the development project was highlighted. The Chiefs were converted to the side of conservation, and with their commitment, support, and blessing mass contact was launched. The people awoke to the consciousness that there was indeed such a thing as conservation which, when correctly practised, will bring in its wake considerable opportunities of employment, jobs and economic benefits which hunters could not provide. That their area would one day become a popular holiday resort for visitors from home and abroad held out a promise of their own increasing importance. The successful enlistment of the whole-hearted support of the people and their leaders was reassuring for the representative Government, as the leader of the area was also a member of the National Parliament.

The next significant cornerstone laid was the legal umbrella spread over the wildlife; the Wildlife Protection Ordinance 1972 promulgated in Southern Pakistan became a model for the rest of the country to follow and the other three Provinces subsequently enforced their own wildlife laws.

Then came the essential phase of preparing a scientific management plan for the national park. It was here that IUCN extended active help and support by assigning the work to their Staff Ecologist, who spent a considerable

time in the country and together with Khan M. Khan prepared a comprehensive management plan, on the basis of which development projects were formulated and funding provisions were made. The phased programmes of development are progressing apace. In an area where ibex had almost been hunted out (leaving only about 1,200) and the urial number had been reduced to a very low level, the Kirthar National Park now has over 4,000 ibexes and about 1,000 urials.

At the other side of the spectrum is the boom that the national park has brought about. There are 108 employees drawn from the villages within the national park now serving with the Government. The complex built for visitors and tourists has helped the local people to market their dairy products, poultry, eggs and meat as well as handicrafts. The visits from VIPs boost the morale of the people and fill them with pride. The law that permits no further extension of cultivation of land than the already existing rights, prevents encroachment from outsiders, which is welcomed by the inhabitants.

There is also provision for sportsmen in the nearby game reserve, where cropping of wildlife is allowed under specific regulations. Hunters try their luck in a lottery and those who succeed in the draw pay a fee of Rs. 10,000 (foreign nationals) or Rs. 5,000 (locals) for hunting one ibex. In the 1985 season 10 hunters came from foreign countries to hunt the 10 head permitted, while another 10 were allowed to be hunted by nationals.

The President of Pakistan, during his visit to Kirthar National Park on 20 April 1983, was impressed by the results of wildlife conservation in the park area. While recognizing that effective steps have been taken for the preservation of wildlife in the park area, he emphasized the need to develop this beautiful spot as a major tourist attraction and was pleased to issue a Presidential Directive for the development of this park.

The plan prepared in pursuance of the President's Directive includes the development of archaeological/geological sites and monuments, improvement of infrastructure, furnishing of the existing tourist cottages and dormitories, improvement of jeep trails and foot trails leading to the look-out points, improvement of existing water points and sinking of new wells, and electrification of Khar and Karchat Visitor Centres. The development plan as envisaged will cost Rs. 24,500,000.

Such then is briefly the success story of a national park in a country which is a latecomer, only recently joining the family of conservationists in the developing world.

Reprinted from: *Proceedings of the International Workshop on the Management of National Parks and Protected Areas in the Hindu Kush—Himalaya*, 6–11 May 1985. Published by: King Mahendra Trust for Nature Conservation and the International Centre for Integrated Mountain Development, Kathmandu.

Conservation and development in Sri Lanka's Mahaweli River Basin Project

Malcolm Jansen

In conditions of high unemployment, rising population and stagnant agricultural production, a large-scale development programme has been launched to harness the resources of the Mahaweli Ganga for agriculture and hydro-electric power. Forested land will be replaced by intensive agriculture and considerable social benefit will accrue. However, wildlife habitats in both forested and flood plain areas will be seriously affected; the latter being especially important for the elephant population. In recognition of the cultural importance of wildlife, land within the programme area has been divided into two categories; 55% for agriculture and settlement, and 45% as a series of protected areas. The Mahaweli Environment Project is responsible for the evaluation, establishment and management of these protected areas according to the methods described in this paper.

En condiciones de alto desempleo, aumento de población y estancamiento de la producción agrícola, se ha puesto en marcha un programa de desarrollo a gran escala, con el fin de encauzar los recursos del Mahaweli Ganga en agricultura y energía hidroeléctrica. El terreno forestal será reemplazado mediante agricultura intensiva, originándose de este modo un destacable beneficio social sin embargo los habitats de la vida silvestre, tanto en áreas pobladas de vegetación, como en llanuras con abundancia de agua, se verán seriamente afectadas, especialmente la última que tan importante es para la vida de los elefantes. Teniendo en cuenta la importancia cultural de la vida silvestre, el terreno de la zona programada se ha dividido en dos categorías: el 55% para agricultura y establecimiento y el 45% como parte de las áreas protegidas. El proyecto para el medio ambiente de Mahaweli, es responsable de la evaluación, establecimiento y administración de estas áreas protegidas según los métodos descritos en este artículo.

Dans les conditions de beaucoup de chômage, de l'augmentation de la population et de la production stagnante d'agricole, on a commencé un grand programme de développement pour aménager les ressources de Mahaweli Ganga pour l'agriculture et la force hydro-électrique. Le terrain couvert de forêts sera remplacé par l'agriculture intensive et le profit social considérable resultera. Cependant, des habitats d'animaux tant dans les régions couvertes de forêts que dans les régions de marée haute seront sérieusement affectés; la dernière était particulièrement importante à la population d'éléphants. En reconnaissance de l'importance culturelle des animaux, le terrain dans la région du programme s'est divisé en deux catégories; 55% pour l'agriculture et la colonisation, et 45% comme une série de régions protégées. Le "Mahaweli Environment Project" est responsable pour l'évaluation, l'établissement et l'administration de ces régions protégées suivant les méthodes décrites dans ce papier.

Introduction

Sri Lanka is a tropical island of 65,610 km² situated in the Indian Ocean. Nearly 15% of its 15 million people are unemployed and agricultural production, accounting for about one-third of the Gross National Product and more than one-half of all employment, has stagnated since the turn of the last decade. As a result nearly 500,000 tonnes of rice, the principal commodity of the Sri Lankan diet, had to be imported annually, prompting the Government to consider new irrigation systems to enhance agricultural productivity and provide new employment opportunities.

Three-quarters of Sri Lanka comprises the "dry zone", a semi-arid, flat or gently undulating region in the northern and eastern parts of the island; receiving heavy seasonal monsoon rains and having soils and climate suited to cultivation. It is traversed by the island's largest river—the Mahaweli Ganga, with its potential for substantially increasing agricultural productivity.

This potential was recognized around the first century BC by the island's ancient inhabitants, who established a series of small reservoirs to catch monsoon rainfall for downstream paddy irrigation. Some of these reservoirs still operate today, many having been reconditioned and incorporated into new irrigation schemes over the last

century. Currently, around 360,000 hectares throughout the island are irrigated by such reservoirs, while a number of multi-purpose water development projects have been recently initiated.

Development policy

A comprehensive 30-year plan to harness the resources of the Mahaweli Ganga and its tributaries for agriculture and hydro-power development was conceived in 1968. Recently, the Government telescoped this plan into a multi-billion dollar Accelerated Mahaweli Development Programme calling for the construction of half-a-dozen major storage reservoirs in conjunction with agricultural and related development in a 400,000 hectare portion of the dry zone. The Accelerated Programme is intended to provide settlement for nearly one million people, boost hydro-electric power output and substantially enhance agricultural productivity.

Implementation of the Accelerated Programme would result in replacement of presently forested land by intensive year-round agriculture and modification of the landscape by the creation of townships, human settlements, roads and other related infrastructure. The principal social benefit to the settler would be the gain of land and water, every settler family being eligible for a 1-hectare plot of irrigated paddy land and a one-fifth hectare highland homestead allotment; representing a

Senior Environmental Officer, Mahaweli Economic Agency, 493, TB Jayah Mawatha, Colombo 10, Sri Lanka

major increase in land ownership for a large number of presently landless persons.

Once the major reservoirs and the irrigation delivery system have been completed there should be sufficient water to cultivate two crops on the land annually. The single yearly cropping presently possible is highly influenced by the vagaries of the weather. In addition, Programme officials will teach traditional farmers to use modern, high yield varieties of seeds. Settler households are expected to become self-supporting and generate agricultural surpluses for commercial markets.

Ecological considerations

Although the Accelerated Mahaweli Development Programme is expected to generate major socio-economic benefits, the effects on the region's diverse wildlife is a cause of much concern. The region being developed includes some of the best remaining forests in the country, of which some 100,000 hectares would have to be cleared in the process. Consequently, there would be a significant reduction in natural wildlife habitat with concomitant loss of a large number of plants and animals.

Nearly two-thirds of the project area is presently

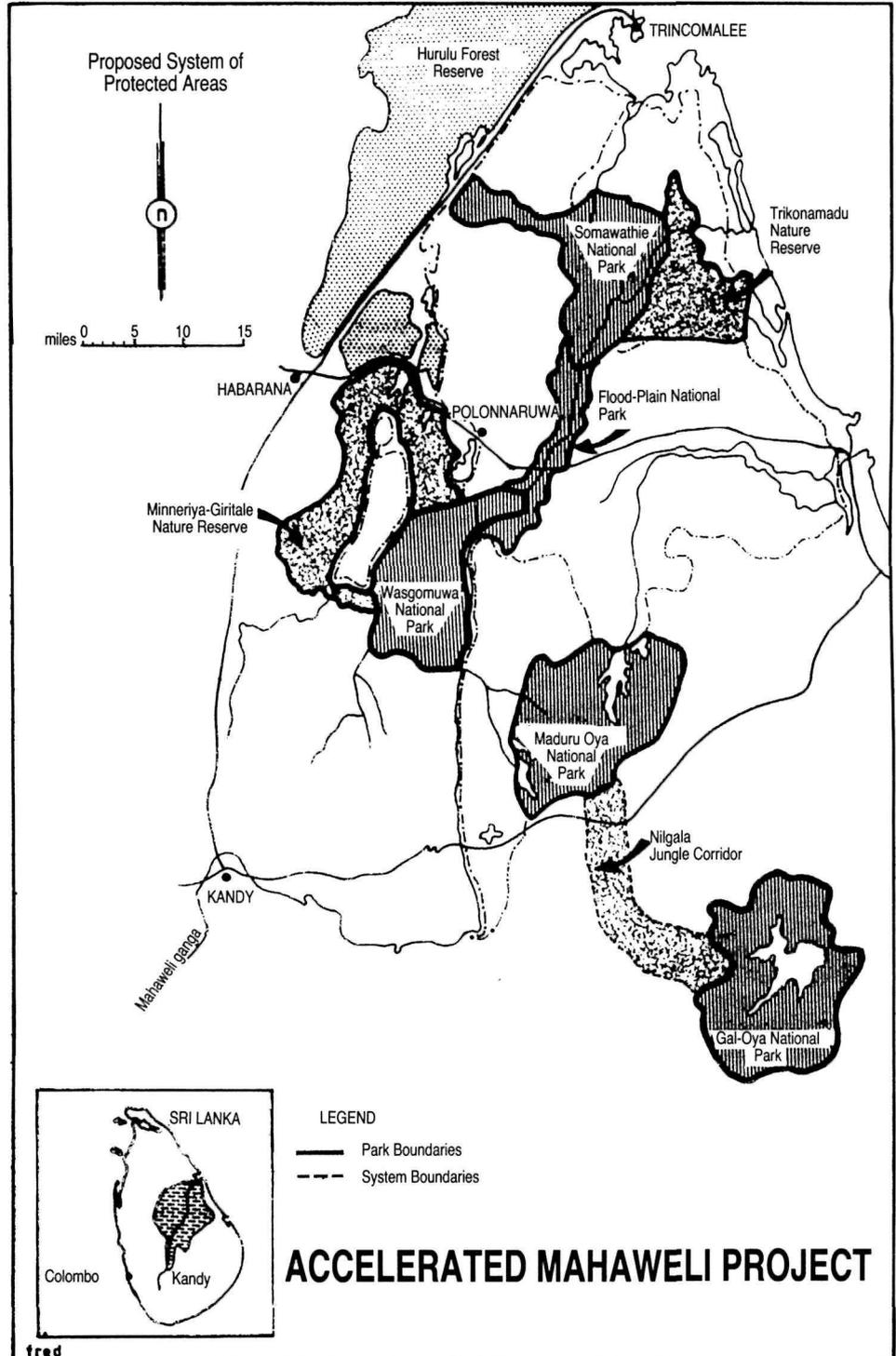


Figure 1 Proposed system of protected areas in the Accelerated Mahaweli Programme.



Maduru Oya Reservoir (photo, A. F. E. Wieberdink)

covered with forest classified in IUCN's system of Biogeographical Provinces as the Ceylonese Monsoon Forest type. More typically described as a Tropical Dry Mixed Evergreen Forest, it is a secondary forest that developed after about 1400 AD at the end of a long period of an early civilization based on irrigation agriculture whose abandoned tanks are found throughout the project area. The forest is characterized by concentrations of 10 major plant species of which *Drypetes sepiaria* is predominant. Other important species are *Diospyros ebenum* (ebony) and *Chloroxylon swietenia* (satin).

The wild habitats within the project area can be broadly classified by vegetative cover into high forests, *villus* swamps, riverine forests, grasslands and dry scrub. Although the largest proportion of wildlife habitats are forested, the *villus* are typically the most diverse and productive systems. *Villus* are seasonally inundated swamp or marshy areas associated with the riverine floodplain of the Mahaweli Ganga. They support the greatest animal biomass of all habitat types in the Programme area. The aquatic medium of the *villus* and the grassy areas surrounding them sustain an abundance of both small and large life forms of several invertebrate and vertebrate taxa. Although the most numerous of the *villus* fauna are fish and birds, the plentiful supply of grass and water also attracts a large number of elephants and other herbivores. These floodplain *villus* along the Mahaweli, which occupy only some 13,000 hectares of the total project area, are considered as high quality wildlife habitats.

The population of elephant (*Elephas maximus*), estimated at 800 individuals in the project area, would suffer most from the proposed river basin development; one of nine animal species listed by IUCN and in the US Federal Register as being under serious threat. The others are the leopard (*Panthera pardus*), marsh crocodile (*Crocodylus polustris*), estuarine crocodile (*C. porosus*), Bengal monitor (*Varanus bengalensis*), python (*Python molurus*), the red-faced malkoha (*Phaenicophaeus pyrrocephalus*), the purple-faced langur (*Presbytis senex*) and the toque macaque (*Macaca sinica*). All these species are also found in other parts of Sri Lanka and, except for the toque macaque, purple-faced langur and the red-faced malkoha, are also distributed in other parts of the world.

Some 95 different endemic flora and fauna occur in the project area, including eight known species of fish, four amphibians, eight birds, 19 reptiles, five mammals and over 50 species of endemic flora. The area also accommodates most of the island's 251 resident bird species. At least 75 other bird species migrate into the area from Europe, Soviet Asia and the Himalayan region during the winter months; many of them, such as sandpipers, plovers, ducks, terns and gulls, frequenting the *villus*. A large number of migrant wagtails occupy the riverine forests, while flycatchers, warblers and thrushes utilize the dry zone forests and dense shrub.

A reserve system

Sri Lanka has a strong religious and cultural commitment to the conservation of nature dating back to the spread of Buddhism around the third century BC. The elephant is



Floodplain riverine forest (photo, A. F. E. Wieberdink)

today fully protected nationwide. The wild population in the country is now estimated between 2,500 and 3,000 animals. Much of the island's natural richness has, therefore, been allowed to exist largely unhampered by man's activities. The social values derived from cultural and spiritual traditions in Sri Lanka predicate a need to balance development goals with wildlife conservation. Land in and around the Accelerated Programme area has been divided into two categories; 55% (250,000 hectares) for agricultural development and settlement, and 45% (210,000 hectares) as a series of protected areas. Although a large extent of land has been set aside as wildlife reserves, it would inevitably incur fragmentation of home ranges and loss of high quality areas to agriculture. Management of wildlife, particularly elephant, will therefore have to become more intensive in the reduced areas available to them and because of the increased likelihood of conflicts between human and wildlife interests.

The establishment and management of this series of protected areas is implemented through the Mahaweli Environment Project, based on an environmental impact assessment study of the Accelerated Mahaweli Programme. The objective was to provide as much contiguous natural habitat as possible around the Programme area and to manage it so as to maximize benefits to agriculture and settlements. It consists of a 5 year programme of work for the expansion and legal protection of two existing wildlife reserves and the establishment of four new protected reserves, together with additional support to strengthen the Department of Wildlife Conservation.

Very high priority has been placed on the upgrading and establishment of protected areas in the regions identified as "high quality" wildlife habitat; in the catchments of reservoirs and along the major river banks in the Programme area. The reserves designated under the Environment Project are the Maduru Oya National Park (55,000 hectares), Wasgomuwa National Park (32,000 hectares), Somawathiya National Park (40,000 hectares), Floodplain National Park (17,000 hectares), Tirikonamadu Nature Reserve (28,000 hectares) and the Minneriya-Giritale Nature Reserve (42,000 hectares). These reserves are being interlinked by additional forest reserves and jungle corridors to confer genetic resilience on the system as well as to safeguard as far as possible the dry and wet season feeding grounds of the elephant. As a result this reserve system would be linked with the extensive Hurulu Forest Complex (nearly 90,000 hectares) in the north-west and with the Gal-Oya Reserve Complex (59,000 hectares) in the south, the latter being connected through the proposed Nilgala Jungle Corridor.

The Accelerated Mahaweli Programme represents the first opportunity in Sri Lanka for incorporating protected areas in an overall development plan through the Mahaweli Environment Project, which recognizes that proper management of wildlife resources in strategic areas will conserve wildlife; protect investments in irrigation work and human settlements, and bring benefits of nature conservation, such as watershed protection and flood control, directly to the people. Other benefits are the enhancement of tourist potential and the creation of off-farm employment possibilities.

Integration of National Parks and faunal reserves in the economy of developing countries

Gerard Sournia

Many protected areas, especially in Africa, have been established where fauna was abundant, diverse and obvious; or occasionally to protect well-known species of fauna or flora seriously threatened with extinction. Only rarely was proper consideration given to the requirements of local people. Management tended to be applied only within the protected area boundaries. Conflicts inevitably developed with local communities, who regarded such areas as restricting their traditional practices. This paper suggests measures for accepting parks and other protected areas as essential elements in national development policy, fully integrated in regional and local development planning in accordance with the concept of "Conservation for Development".

Mucha áreas protegidas, han sido establecidas especialmente en Africa, donde la fauna era abundante, diversa y evidente, u ocasionalmente para proteger especies bien conocidas de la fauna o flora, seriamente amenazadas con peligro de extinción. Sólo en rara ocasión, se ha tomado oportuna consideración, a los requerimientos de los habitantes del lugar. La administración puso sus miras en atender, solamente los terrenos dentro de los límites del área protegida. Inevitablemente se desencadenaron conflictos entre las comunidades locales, las cuáles consideraban tales áreas como restricción de sus costumbres tradicionales. Este documento sugiere medidas para la aceptación de, parques y otras áreas protegidas, como elementos esenciales en el desarrollo nacional de la norma de conducta, plenamente integrada en el proyecto de desarrollo local y regional, acorde con el concepto de "La conservación para el desarrollo".

Beaucoup de régions protégées, particulièrement en Afrique, s'est établies où la faune était abondante, diverse et évidente; ou de temps en temps de protéger les espèces bien connues de la faune ou la flore sérieusement menacées de l'extinction. Rarement on avait considéré les besoins du peuple local. L'administration s'était appliquer dans les limites de la région protégée. Inévitablement, les conflits développaient avec des communautés locaux, qui considéraient que ces régions limitaient leurs habitudes traditionnelles. Ce papier propose des mesures pour l'acceptance des parcs et d'autres régions protégées comme des éléments essentiels dans la policie nationale de développement, complètement intégrées dans les provisions de développement régional et local dans l'accord de l'idée de "Conservation for Development".

Numerous developing countries have made genuine efforts in various aspects of conservation and protection of nature. These efforts have taken various forms, but the majority relate to the creation of national parks or other reserves for fauna, especially in Africa.

Most of the protected areas, established during colonial administration, though in some cases after independence, have been in regions where the fauna—and to a lesser extent the flora—were still abundant, diverse and obvious (however, a reserve might have been established to protect one or more seriously endangered species). In general, therefore, these were usually regions where human settlement and pressure was light or absent altogether. Such areas sometimes served also as a reservoir of animals for hunting.

The map of the African continent demonstrates the close correlation between these areas and low human population density and influence. This is true for the Gomoé and Taï parks in the Ivory Coast, Nikolo Koba in Sénégal, the Manovo–Gounda–St Floris complex in the Central African Republic, and Zakouma in Chad. These regions correspond to the zones where physical and biological conditions pose significant constraints on human settlement and activity.

These areas, in many cases occupying 5–10% of the total national territory and often the greatest part of a particular natural complex (frequently hundreds of thousands—even millions—of hectares in extent), are very lightly utilized and generally speaking are not integrated in the overall national economy. Although

certain countries, mainly English-speaking ones (Kenya, Republic of South Africa and, to a lesser extent Tanzania), have derived very significant economic benefit from them through tourism, these must be regarded as exceptions to the general pattern of non-integration of parks in the national economies of developing countries.

The human populations, whether on the park boundary or in its vicinity, are uninterested in this kind of conservation, which in their eyes "sterilizes" vast areas in the name of concepts unfamiliar to their traditions. This point of view is often relayed at the national level by various pressure groups.

Elements of the problem

The chronic inadequacy of the world food supply together with an ever-increasing world population, leading inevitably to a demand for new land to be put into production, significantly modifies the basis for assessing the problem. The alternatives appear to be relatively simple: *either* a progressive and possibly complete disappearance of parks and reserves as well as much of the biological capital they were intended to protect, or a need to ensure that their qualities and potential benefits are properly assessed and taken into account in the economy and in planning at regional and national levels.

From the sociological standpoints, three main situations can be identified: (1) human settlement is present near the park, but at low density and large unoccupied areas still remain (e.g. in Ivory Coast and Sénégal); (2) the park forms an integral part of an area entirely devoid of human settlement, although traversed during transhumance or by occasional trespassers such as poachers

IUCN Regional Representative in West Africa, BP 2014, Dakar, Senegal

(e.g. Central African Republic); (3) human pressure round the boundaries of the park is very great and surrounding agricultural interests agitate for declassification of protective status (e.g. Rwanda).

In all three cases, the park is regarded as an "added extra" producing a minimal contribution to the national economy, mainly from occasional tourists, and usually costing more in supervision than is obtained in receipts.

Object of the review

The intention of this discussion is to suggest solutions which could make parks an essential element, and in certain cases the principal element, of regional development; and at the same time demonstrate that ecology and economy, far from being competitors, can complement each other through the philosophy of "Conservation for Development". In other words, it is time to think about stopping further deterioration in the situation, and trying to construct a strategy adapted to local conditions. It should provide for the stabilization, both numerically and geographically, of the agricultural and pastoral populations, and also for the disposition of land for their benefit in the proximity of the park sufficient to compensate for the loss of their traditional heritage implied, in their view, by denial of their right to use the natural resources of the park. However, no such strategy could be properly developed without a comprehensive understanding of the zone concerned, and a procedure comprising the following components is suggested: confirmation of national policies on both natural resource conservation and on programmes for land management and regional development; and preparation of an overall picture of the socio-economic situation of the region concerned and of its productivity potential as a basis for a regional development scheme. Such a survey would need to be complete and all the information up-to-date. It would include the following elements:

- a socio-economic study of populations and their activities;
- a study of agro-pedological potential;
- an inventory of fauna and of vegetation types together with their grazing potential;
- an inventory of existing administrative and social infrastructures;

A series of proposals could then be derived which should enable:

- definition of a regional development policy with respect to the park and its fauna;
- management of the fauna and its habitat for their proper conservation and for the development of tourism;
- identification of appropriate activities by which surrounding populations can participate in future devel-

opment of the zone and profit directly from its economic and social benefits (tourist industry, small-scale market gardening, game ranching, hunting concessions in game dispersal areas, souvenir trade, direct employment within the park. e.g. Amboseli, Kenya);

- planning of social services (e.g. schools, health services, water supply, communications network, etc.) for the populations concerned;
- development of a strategy for minimizing social friction arising from competing interests of tourism, hunting, agriculture and pastoralism for use of land;
- establishment of a proper administrative and legal authority to ensure both the management of the park and the determination of responsibilities for implementing all other necessary measures, so that local people clearly understand the close connection between protecting the park and improving the quality of their lives;
- institution of effective measures to combat interference with the park and its wildlife (e.g. poaching), while at the same time recognizing traditional practices, especially in relation to e.g. hunting, fishing and other harvesting of wild products;
- development of a public awareness and information programme for the local people;
- development of a programme of scientific research and technical training in natural resource management in conjunction with the university and research institutes;
- exploration of funding sources (international, bilateral, regional) and development of an outline framework for ensuring coordinated progress in all aspects of the various initiatives taken (e.g. with the participation of voluntary service organizations).

In the same way these projects and studies should be regarded in a multinational and "community" perspective; individual parks often being part of a coordinated system or network crossing national boundaries and involving a number of states. This is particularly striking in the case of the system comprising W (Niger), Pendjari (Benin) and Arly (Burkina Faso) national parks. Such a coordinated system can only be considered in an inter-state context, as is already the situation in, for example, the Council of Europe.

These proposals for realizing the potentials of these types of zones, often classified as marginal, could form an important contribution for the consideration of governments looking for ways of including them in various economic development plans as a feature of national life. In this context, some results are discernable to the extent that several agencies, in particular the European Community, have started financing relevant studies and activities in Central African Republic, Chad, Ivory Coast and probably also Sénégal.

World Heritage Report—1985

Jim Thorsell

The World Heritage Convention has now been in force for 10 years. Eighty-eight countries have adhered to the convention and 61 natural properties have been inscribed on the World Heritage List. More than US\$1.4 million has been disbursed from the World Heritage Fund in direct support of these properties. Five natural sites were added to the list in 1985.

La Convención para la Herencia Mundial ha cumplido ahora 10 años de vigencia. Ochenta y un países se han adherido a la convención y setenta y una zonas naturales han sido inscritas en la lista para la herencia mundial. El Fondo Mundial para la Herencia ha desembolsado más de un millón y cuatrocientos mil dolares americanos en apoyo directo de estas zonas. En 1985 cinco zonas naturales más fueron añadidas a la lista.

La Convention. "World Heritage" a été maintenant établie pendant dix années. Quatre-vingt huit pays ont adhéré à la Convention et soixante et un propriétés naturelles ont été inscrites à la liste de "World Heritage". Plus que 1.4 million de dollars ont été dispersés du "World Heritage Fund" à l'appui direct de ces propriétés. Cinq sites naturels étaient ajoutés à la liste en 1985.

Although it is still relatively young as international conventions go, the implementation to the Convention is proceeding well. Despite its limited financial resources and the fact that a number of key countries have not joined, most park managers involved feel that the Convention has proved itself useful as a legal conservation instrument. In his new book on international Wildlife Law (1985) Simon Lyster has noted that: "In the few years that it has been in force, a number of important wildlife habitats have benefitted from the patronage of the World Heritage Convention and, as more States become Parties and as more sites are included in the World Heritage Lists, its contribution to wildlife conservation is certain to become increasingly significant".

Having increased revenue from dues payments by State Parties, the World Heritage Committee adopted a 50% increase in budget for 1986. Greater attention will be given supporting requests that deal with training. Projects were approved for Darien National Park in Panama, Garamba and Salonga National Parks in Zaire, and Amistad Reserve in Costa Rica.

Additions to the list

On behalf of the World Heritage Committee, IUCN evaluated eight natural site nominations for 1985. Five were eventually inscribed at the meeting of the Committee held in Paris in December. The latest additions to the World Heritage List are:

(1) *Kaziranga National Park, India.* The last remaining natural section of the floodplain of the Brahmaputra River is contained in this important park in Assam. Kaziranga is internationally noted for its success in protecting the one-horned Indian rhino, of which three-quarters of the world population are now found in the park—1,195 individuals (up from 12 in 1900).

(2) *Keoladeo National Park, India.* This park is one of the most important wetland sites of the Indian sub-continent and has been recognized under the Ramsar Convention. It is a particularly important site for migratory Palaearctic waterfowl as well as for many thousands of nesting cranes

and storks. Among its 364 resident bird species is found the only western population of the rare Siberian Crane, of which 41 use the park in the winter season.

(3) *Manas Wildlife Sanctuary, India.* This reserve is located in the foothills of the Himalayas and is contiguous with the Manas Wildlife Sanctuary of Bhutan. Manas is one of India's Tiger Reserves and harbours 20 threatened species including the pygmy hog, hispid hare, and gharial. In recognition of its impending status for World Heritage listing, the Governments of India and Bhutan cancelled plans for hydro dam construction in the Sanctuary.

(4) *Huascarán National Park, Peru.* This park encompasses the Cordillera Blanca, the most outstanding portion of the Andes Mountains and is the highest tropical mountain range in the world. El Huascarán (6,768 m) is the highest of 27 peaks over 6,000 m found in the park. Spectacled bear, vicuña and huemal deer are also found in the park. Huascarán's alpine attractions draw mountaineers from all over the world.

(5) *Görme Valley, Turkey.* This area was added to the World Heritage List on the basis of its combined values as a natural and a cultural property. The valley itself is composed of unusual eroded land forms containing pillars, columns and obelisks. Within these formations 15 centuries of human occupation have excavated a network of caves, residences and rock-hewn churches. The resulting landscape is an exceptional display of man and nature in harmonious balance.

Monitoring of stewardship

Three natural properties remain on the List of World Heritage in Danger—Djoudj in Sénégal, Garamba in Zaire and Ngorongoro in Tanzania (see PARKS, Vol. 10, no. 1 1985). A further site, Tai National Park in the Ivory Coast, was proposed for addition to the danger list because of serious impacts in the park from poachers, gold prospectors and illegal settlers. Threats to the integrity of seven other World Heritage properties were also discussed by the Committee and four of these (Pirin in Bulgaria, Ichkeul in Tunisia, Los Glaciares in Argentina and the Great Barrier Reef in Australia) are being brought to the attention of the government concerned.

Executive Officer, IUCN Commission on National Parks and Protected Areas

PARKS sección español

Editorial

La anterior editora Jean Packard al terminar la que iba a ser su última editorial en el número 3 de Parques anterior a este dijo: “. . . Parece que no hay otra alternativa que aceptar lo que nosotros esperamos solamente sea una remodelación en la publicación de Parques . . .”.

Con este número empieza una nueva etapa para la revista. Su publicación ha sido trasladada de los Estados Unidos al Reino Unido. Ahora tiene una nueva junta editora, la cual consiste en el vice-presidente de la Comisión sobre Parques Nacionales y Areas Protegidas, junto con otros colegas experimentados en el campo de la publicación. Tiene el apoyo del ámbito editorial y del Centro Monitorio para la conservación de la IUCN. Cuenta también con un nuevo Jefe Editor con considerable experiencia en administración y dirección de áreas nacionales y una larga relación con la IUCN. PARQUES debe su renovación a mucha gente, particularmente al Dr. Gary Wetterberg, quien preparó el informe el cual resultó en la aprobación por parte de la IUCN en su asamblea general en 1984, apoyando su continuación.

Estamos profundamente en deuda con el Fondo Mundial para la Naturaleza y el Servicio de Parques Nacionales Norteamericano por su valioso apoyo en la labor de rejuvenecimiento de la revista. Sin embargo ellos no pueden continuar proporcionándonos esta ayuda básica. Es esencial de que la base financiera de la revista sea ampliada. Nosotros recurrimos a ustedes, nuestros lectores, para ayudarnos en esta tarea.

Creemos que PARQUES debería actuar como vehículo para informar de sus éxitos, sacar sus problemas a la luz, hablar de sus técnicas y dar sus opiniones, además de ser un órgano para propagar información acerca de filosofías, investigación y metodologías, las cuales tienen aplicabilidad para administradores y directores en este campo.

Esperamos que la sección de correspondencia sea extensamente utilizada para buscar e intercambiar in-

formación y puntos de vista. A pesar de que en esta nueva serie el título aparece en la portada en tres idiomas, los primeros pocos números serán en inglés, con una sección dedicada (con la condición de que se reciba una donación de fondos) a artículos en español, con sumarios en francés a inglés. Los artículos en inglés tienen sumarios en francés y español. No obstante nuevas intenciones son de publicar ediciones separadas en inglés, español y francés, siempre y cuando nuestros fondos económicos nos lo permitan, y esperamos que el presente arreglo solamente sea temporal, aunque sin prospectos para cambios inmediatos. No obstante habrá un contenido substancial en español en el próximo número, el cual contendrá una selección de extractos sobre el desarrollo de la 27 Sesión de Trabajo de la Comisión de Parques Nacionales y Areas Protegidas de la IUCN, celebrada en Bariloche, Argentina, en Marzo de 1986.

Hemos considerado cuidadosamente el formato y presentación de PARQUES y hemos decidido de elegir los métodos más baratos conforme a un producto razonable. De hecho dado que tenemos que limitarnos a un corto presupuesto, en lo máximo posible, no nos queda otra alternativa que asegurarnos de que PARQUES solamente llegue a aquellos a quienes creemos les va a ser de mayor utilidad, directores y administradores en el campo de áreas protegidas, especialmente aquellos pertenecientes a países en vías de desarrollo, quienes posiblemente no tienen acceso a mucha lectura técnica.

Confiamos de su interés para poder establecer la revista una vez más, como una útil e importante fuente de ideas, noticias y opiniones para aquellos responsables de cuidar de las áreas de nuestra herencia natural y cultural, tan importantes para todos.

TONY MENCE (Editor)

Prefacio

Este primer número de la “nueva” PARQUES contiene una selección de artículos, los cuales versan sobre la clave del asunto de integración de la administración de áreas protegidas con otras formas de empleo de la tierra rural.

Directores de parques de todo el mundo manifiestan que a pesar de que las áreas protegidas son a menudo consideradas como islas aisladas de sus alrededores, están expuestas a muchas influencias externas y sucesivamente afectan las tierras colindantes.

Estas relaciones pueden ser principalmente ecológicas o físicas, pero también encierran consideraciones culturales, sociales y económicas. Las áreas protegidas no son establecidas para apartarlas del cauce evolutivo, sino que más bien constituyen una forma para el empleo de la tierra, la cual debe ser complementaria a su demarcación interna, para así poder subsistir.

La estrategia mundial para la conservación hace hincapié en la necesidad de integrar la conservación con el desarrollo regional. Por otra parte el objetivo 5 del plan de acción para Bali aspira a una viva fomentación de la conexión entre áreas protegidas y el desarrollo para un mantenimiento apropiado.

Si las áreas protegidas han de formar parte como modelo del empleo de la tierra, cubriendo un área mucho más extensa que el parque o reserva en sí, éstas deberán ser administradas y dirigidas como tales.

Este número de PARQUES presenta ejemplos de África y Asia como ilustración de algunas de las relaciones positivas y negativas que pueden existir entre un área protegida y sus tierras adyacentes; cómo los conflictos

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Cooperación técnica entre Perú y Nueva Zelanda en parques nacionales y áreas protegidas (análisis de un ejemplo de cooperación bilateral)

P. H. C. Lucas*

En 1973 hubo un intercambio de visitas entre funcionarios de Nueva Zelanda y del Perú, de las cuales resultó un programa de cooperación técnica entre ambos países, llevándose a cabo el envío de expertos neocelandeses en ciencia forestal, agricultura y parques nacionales al Perú y el entrenamiento en Nueva Zelanda de expertos peruanos en los mismos campos.

In 1973, an exchange of working visits began between officials of New Zealand and Peru. These have resulted in a technical cooperation programme between the two countries whereby New Zealand has set up facilities for training experts in forestry science, agriculture and national parks in Peru.

En 1973, un échange de visites de travail commençait entre la Nouvelle-Zélande et le Pérou. Celles-ci ont abouti à un programme de coopération technique entre les deux pays par lequel la Nouvelle-Zélande s'est établie les facilités pour l'éducation des experts dans les sciences forestières, l'agriculture et les parcs nationaux de Pérou.

Una asignación de evaluación

Al no estar suficientemente claro, cómo Nueva Zelanda podría dar su mejor contribución al desarrollo de parques peruanos, el Ministerio de Relaciones Exteriores de Nueva Zelanda me pidió que determinara qué clase de perito sería más eficiente en el Perú y qué entrenamiento sería mejor adaptado a las necesidades del país.

Mi programa, tras una estancia de tres semanas en el Perú, fue organizado por la Dirección General Forestal y de Caza, cubriendo diversas visitas en Lima, dando éstas origen a conversaciones con funcionarios de la Universidad de La Molina, entre ellos, Dr Marc Dourojaneanni, Dr Antonio Brack e Ing. Carlos Ponce.

Después de haber tomado en cuenta todos los factores, llegué a la conclusión de que se podría operar más eficientemente desde una base en Lima. Los funcionarios peruanos aprobaron este enfoque y se decretó un plan de operaciones para un perito neocelandés en el Perú, cubriendo los siguientes puntos:

- Un perito en administración de parques será puesto a disposición del gobierno peruano por un periodo de 2 años.
- Recibirá clases de castellano y será provisto por el gobierno de Nueva Zelanda con un vehículo apropiado y el equipo necesario para operar eficientemente.
- Trabaja con la Dirección General Forestal y de Caza a través de la Dirección de Fauna Silvestre, con base en Lima.
- La Dirección General proveerá una contrafigura para asegurar la eficiencia del programa y cubrirá los gastos de viaje dentro del Perú.
- El objetivo principal del programa será el desarrollo de facilidades públicas para recreo y el goce de las atracciones arqueológicas e históricas, compatibles con su preservación.

*Vice-presidente de la CNPPA (Comisión de Parques Nacionales y Áreas Protegidas), Director General de Tierras de Nueva Zelanda, Department of Lands and Survey, Private Bag, Wellington, New Zealand

- Otro objetivo de la administración será el empleo de las áreas, para educación ambiental, natural y para interpretación histórica.
- El trabajo será emprendido consultando con otras organizaciones interesadas (incluyendo universidades y museos).
- Áreas iniciales mereciendo tratamiento prioritario señalan las reservas nacionales de Paracas y Lomas de Lachay.

Las reservas nacionales de Paracas y Lomas de Lachay

Paracas es una zona costera situada a unos 250 km. al sur de Lima, con muchos puntos de interés además de su valor escénico. Dentro de sus 335.000 hectáreas se pueden ver flamencos, condors y leones marinos, siendo además de gran interés arqueológico e histórico.

Lomas de Lachay es un área más pequeña en una zona de cerros arenosa, situada a 100 km. al norte de Lima. Aquí, yacen los residuos de un bosque, que ha estado siendo enriquecido con plantaciones, desde 1933, de especies importadas, incluyendo eucaliptus y casuarinas. Usado ya para excursiones, posee un guarda permanente, pero carece de potencial para paseos, áreas de recreo y exhibiciones, lo que podría transformarlo en una zona preciosa para la demostración de estudios ambientales.

Instrucción del personal peruano

Se organizó un curso de instrucción durante 11 días, atendiendo unidades de conservación en el Perú, al cual asistieron 24 personas. Los temas tratados fueron los siguientes:

- Historia, funciones, organización y responsabilidades de Dirección de Fauna Silvestre e historia y desarrollo de parques nacionales y reservas en el Perú.
- Leyes y política de bosques y vida silvestre. El servicio de guardabosques y su futuro.
- Sistema de zonificación dentro de las unidades de conservación y principios del manual de señalización (diseño de señales, colocación y texto).

- Mantenimiento, cuidado y uso de herramientas de mano y del equipo de trabajo y utilización y manejo de cuerdas, nudos, etc.
- Albanilería, carpintería y tipos y aplicación de pintura.
- Lucha contra el fuego, búsqueda y rescate, rescate en despeñaderos, primeros auxilios y cartografía.
- Control y disciplina del personal y principios de adaptación en el terreno. Facilidades para los visitantes del parque y salidas al campo.
- Disecación de muestras silvestres.
- Empleo de audio-visuales y preparación y pronunciación de una conferencia.
- Plan de administración para Lomas de Lachay.

También se otorgaron 8 becas para personas envueltas en administración de parques peruanos, con el fin de ampliar sus conocimientos en Nueva Zelanda, recogiendo experiencias e impresiones de la actitud neocelandesa hacia la administración.

Desarrollo en el Perú

La naturaleza evolutiva del proyecto esta ilustrada por los siguientes puntos de referencia, bajo los cuales el Sr. Patrick Sheridan ha sido nombrado para seguir con el trabajo inicial.

- Trabajar para la aprobación del plan de administración para las Lomas de Lachay y ayudar en su desarrollo.
- Completar el plan de desarrollo y administración de Paracas.
- Organizar y llevar a cabo más cursos de entrenamiento para guardas forestales, como sea apropiado.
- Adiestramiento de los jefes y personal de unidades de conservación.
- Dar clara información a los visitantes (letreros, paneles, folletos etc.).
- Especializar a una persona en todos los aspectos de la operación de parques nacionales y reservas.

Cuando se acabó el proyecto, la reserva nacional de las Lomas de Lachay, sé ha considerado adecuadamente desarrollada para servir de ejemplo, a fin de ayudar a personal de otras unidades. Su carácter compacto y el acceso razonablemente fácil, ayudó a cumplir este papel.

El desarrollo de la reserva de Paracas se ha llevado a cabo en menor grado que en Lachay. No obstante, se ha formado un circuito de 55 km. de recorrido por las expansiones arenosas, desembocando en las principales áreas de interés. Se han instalado letreros de madera foto-grabados con propósitos de dirección, entrada e información, se instaló una unidad para exhibición de información, portable, se han construido atalayas sobre colonias de focas, se han imprimido folletos con información turística, además de un puesto de guardia a la entada y un nuevo centro administrativo al lado del museo actual. También se han establecido directivas para diferentes aspectos del ya completado plan de administración.

Con el propósito de aplicar la experiencia obtenida a otras unidades, se han efectuado visitas a Junin, Amotapes, Cutervo, Huascarán, Tingo Maria, Manu, Pampa Galeras, Titicaca, Huayllay y Chacamarca; para aconsejar sobre planificación, diseño de facilidades y métodos de administración.

Merece especial mención la toma de medidas eficientes de cooperación para aumentar la conciencia del



Manu Parque Nacional, Perú (foto, WWF/Hartmut Jungius)

público sobre la conservación de la naturaleza e inspirar el uso apropiado y respeto para el medio ambiente. Se encuentra buen ejemplo, relacionado con el problema de la basura, en las visitas de niños escolares a la reserva de Lachay, donde se han organizado actividades para dejarla limpia antes de que los grupos se vayan, otorgándose premios a las escuelas que han obtenido los mejores resultados.

Tras los proyectos que los expertos neocelandeses llevaron a cabo en el Perú, se iniciaron similares experiencias en otros 14 países diferentes, como es el caso del Nepal en Asia, cooperando para establecer el parque nacional de Sagarmatha.

Finalmente decir que Nueva Zelanda continua ofreciendo posibilidades de entrenamiento en la administración de la conservación a otros países, siempre que haya financiación de sus gobiernos.

continúa de la página 1 (prefacio)

pueden ser reducidos y cómo intensificar los beneficios de las comunidades locales. Los artículos también muestran como la seguridad, apoyo y apreciación de las áreas protegidas pueden ser fortalecidas mediante el énfasis y desarrollo posterior de sus contribuciones al proceso de desarrollo regional y la unión de lazos para mutua interdependencia con otros departamentos y agencias para el planeamiento y ejecución del proceso del desarrollo de mantenimiento.

En demanda de una eficiente e inmediata utilización para el aumento de los recursos naturales en todo el mundo, particularmente en los países tropicales de rápido incremento de la población, la necesidad de las áreas protegidas debe ser clarificada. Para afrontar estas presiones, las áreas protegidas han de ser justificadas tanto en el término biológico como en el socio-económico.

Puesto que los funcionarios del gobierno y el público en general sobrestiman el papel de las áreas protegidas en el desarrollo de su medio ambiente, dichas áreas deberían ser designadas y dirigidas de tal forma que aportaran beneficios reales a las comunidades locales y nacionales.

H. K. EIDSVIK (Chairman)

J. THORSELL (Executive Officer)

IUCN Commission on National Parks and Protected Areas

Cursos

Centro internacional para la educación de la conservación

El centro internacional para la educación de la conservación provee un foco global para países en vías de desarrollo.

Originado por un miembro del WWF (Fondo mundial para la naturaleza) y éste mismo también miembro de la IUCN (Unión internacional para la conservación de la naturaleza), el proyecto internacional para la educación empezó en 1975. El centro ha introducido muchas técnicas innovativas en este aspecto, especialmente en diseño, construcción, uso de unidades móviles de educación y la producción de materiales audio-visuales. Dicho centro proporciona cursos de instrucción con regularidad, además de proveer servicios de consulta en todo tipo de asuntos relacionados con el establecimiento y administración o dirección de cursos de educación para la conservación para todos los niveles. Para más información contactar: The Director ICCE, Greenfield House, Guiting Power, Guiting Power, Gloucestershire GL54 5TZ.

Conferencias

Conferencia internacional sobre paisajes protegidos

Un miembro de la IUCN, está organizado una conferencia internacional sobre paisajes protegidos, categoría V, áreas en el sistema de la CNPPA (Comisión de parques naturales y áreas protegidas), que se celebrará en 1987.

El propósito de esta conferencia es de establecer más claramente el concepto de paisajes protegidos, para mejorar el estado de los paisajes protegidos como un medio para la conexión de la conservación y el desarrollo y para fortalecer la cooperación internacional. La conferencia será planeada en estrecha consulta con la IUCN y la CNPPA y será mediante invitación. Tendrá lugar en el Reino Unido, pero ayuda financiera por parte del Consejo Británico y otras fuentes, será disponible para dar la oportunidad a participantes de asistir a la conferencia, especialmente a aquellos que pertenecen a países en vías de desarrollo.

Se tiene la esperanza de que un proyecto de resolución sea desarrollado a lo largo de la conferencia, para ser considerado más tarde en la Asamblea General de la IUCN en Otoño de 1987.

20 Seminario internacional sobre parques nacionales

Desde 1965, 629 altos ejecutivos de parques pertenecientes a 108 países, han asistido a este seminario. Las fechas para este año son del 29 de Julio al 27 de Agosto, iniciando en Calgary y

Banff y finalizando en Tuscon. Mandar aplicaciones a: Hugh Bell Muller, Director, International Seminar, University of Michigan, School of Natural Resources, Ann Arbor, Michigan 48109, Estados Unidos.

Comisión sobre parques naturales y áreas protegidas; 27 sesión de trabajo celebrada en Bariloche, Argentina, del 9 al 14 de Marzo de 1986:

Esta fue la tercera reunión de la comisión, para discutir temas sobre áreas protegidas en el Reino Neotropical.

Setenta y un altos funcionarios del departamento de parques y representantes de ONG, UNESCO, FAO, UNEP y del departamento del interior de los Estados Unidos, de 22 países, se reunieron durante una sesión de 5 días.

Con el propósito de seguir su tradición de "ser realistas", también fueron ofrecidas salidas al contiguo parque nacional Nahuel Huapi y a la península Valdez. La sesión de trabajo fue inaugurada por su Excelencia el Presidente de Argentina Raúl Alfonsín, quien otorgó un importante discurso en la sesión inaugural. La sesión técnica fue co-dirigida por el vicepresidente de la IUCN y CNPPA Marc Dourojeanni y por el Dr. Jorge Morelo, director de la administración argentina de parques nacionales. También asistieron, el presidente de la comisión Harold Eidsvik y el ejecutivo oficial Jim Thorsell.

El objetivo principal de la reunión fue de analizar el estado actual de conservación de las 350 áreas protegidas (52 millones de hectáreas), en este reino diverso. Se hicieron 40 presentaciones sobre varios aspectos de la administración y dirección de áreas protegidas en sus respectivos países, las cuales están siendo publicadas en un volumen de medidas, siendo recopilado por el Sr. Eric Cardich (Perú). Esta claro, según las discusiones, que los parques en el reino están en serios problemas debido tanto a tensiones planteadas por la crisis de deudas, como al gran número de amenazas, tales como desarrollo interno inapropiado y cultivo ilegal de narcóticos.

Las situaciones de Brasil, Argentina, Costa Rica y Venezuela fueron escogidas para recibir especial atención en resoluciones y discusión. El tema concluyente tratado en la sesión de trabajo fue la estrategia de acción del Nahuel Huapi para áreas protegidas en el Reino Neotropical. Este documento da un detallado número de objetivos y actividades, tanto a nivel nacional como internacional, que deben ser fortalecidos e iniciados para conseguir una mayor cobertura y una administración de parques y reservas más efectiva en el futuro.

La estrategia en sí, (nombrada con el

mismo nombre del parque donde se celebró la reunión), sigue en principio, el plan de acción para Bali de la IUCN y otros planes de acción preparados para los Reinos Oceánico e Indomalayo.

El esquema final está siendo ahora recopilado por el Dr. Pedro Salinas (Venezuela), presidente del grupo de trabajo de la acción estratégica.

Publicaciones

Marine Parks and Conservation: Challenge and Promise

Editado por J. Lien y R. Graham

Publicado por la Asociación de Parques Nacionales y Provinciales de Canadá, en 1985, y adquirible a través de: Publicaciones NPPAC, Suite 313, 69 Sherbourne Street, Toronto, Ontario M5A 3X7, Canada. Precio: \$24.95 canadienses, más \$1.50 para gastos de envío.

Natural and Cultural Heritage Interpretation Evaluation

Editado por John Marsh

Publicado por la Universidad de Trent (Canada), en 1986 y adquirible a través de: Geography Department, Trent University, Peterborough, Ontario K9J 7B8, Canada. Precio: \$10.00 canadienses.

Desarrollo de una conferencia patrocinada por la Sección de Interpretación de Ontario (Canada) y por el Programa de Estudios para el medio ambiente y recursos naturales de la Universidad de Trent.

Conserving Asia's Natural Heritage: The Planning and Management of Protected Areas in the Indomalayan Realm

Editado por J. W. Thorsell

Publicado por la IUCN, y adquirible a través de: IUCN Publication Services, Avenue du Mont Blanc, CH-1196 Gland, Switzerland. Precio; lo desconocemos.

Desarrollo de la 25 Sesión de Trabajo de la Comisión de Parques Nacionales y Áreas Protegidas (IUCN), celebrada en el parque nacional Corbett (India), del 4 al 8 de Febrero de 1985.

People and Protected Areas in the Hindu-Kush Himalaya

Editado por Jeffrey McNeely, Jim Thorsell and Suresh Chalise

Publicado por: King Mahendra Trust y la ICIMOD, y adquirible a través de: ICIMOD, GPO Box 3226, Kathmandu, Nepal.

Desarrollo del Taller Internacional sobre administración y dirección de parques nacionales y áreas protegidas en el Hindu-Kush, Himalaya.

Integration of a World Heritage Site in an agricultural environment in the Simen Mountains (Ethiopia)

*Hans Hurni and Teshome Ashine**

Is the conflict between nature-oriented conservation and man-oriented rural development inevitable? To what degree does, or should, ecological research contribute to mountain development? How can conservation areas be protected from being areas of natural resources ultimately to be used by man in case of life-threatening need? A high mountain national park in Ethiopia is taken as an example within UNESCO's concept of Biosphere Reserves. The main finding is that conservation without development will fail, and therefore the focus is more on the area surrounding a national park than on the park itself. A buffer zone must be developed as an ecologically stable and socially secure area for man, so that his needs do not drive him to exploit the last natural resource area in his vicinity. Simen is a World Heritage Site for future generations. Man and nature, development and conservation, belong together in this unique mountain area.

¿Es inevitable el conflicto entre la conservación orientada por la naturaleza y el desarrollo rural orientado por el hombre? ¿A qué nivel investigación ecológica contribuye, o debería contribuir al desarrollo de terrenos montañosos?, ¿Cómo pueden las áreas de conservación ser protegidas de ser áreas de recursos naturales, con el fin de ser usadas por el hombre en el caso de que su vida corriese peligro?. Tomemos como ejemplo, un Parque Nacional de alta montaña en Etiopía, dentro del concepto que la UNESCO tiene sobre la reserva de la biosfera. El hallazgo principal es que, no puede darse la conservación sin el desarrollo, y por consiguiente el foco se centra más en el área alrededor de un Parque Nacional, que en el parque en sí mismo. Una zona neutral debe de ser desarrollada como área ecológicamente estable y segura para el hombre, de tal modo que sus necesidades no le conduzcan a explotar hasta la última zona de recursos naturales en su vecindad. Simen es un lugar muy valioso para las generaciones venideras. Hombre y naturaleza, desarrollo y conservación, pertenecen ambos a esta área montañosa, única en su género.

Est-ce que le conflit entre la conservation orientée à la nature et le développement rural orienté à l'homme est inévitable? A quel degré est-ce que les recherches écologiques contribuent—ou contribueraient—au développement des montagnes? Comment protéger les régions de conservation de devenir des régions de ressources naturelles finalement d'être utilisées par l'homme quand sa vie est en danger? Un haut Parc National montagneux dans l'Éthiopie donne un exemple du concept de la Réserve Biosphère d'UNESCO. La découverte principale est que la conservation sans le développement échouera, et puis le point est plus sur la région autour du Parc National que sur le parc lui-même. Une zone tampon doit être développée comme une région écologiquement stable et sûre pour l'homme, de sorte que ses besoins ne lui force pas d'exploiter la dernière région des ressources naturelles de ses environs. Simen est un "World Heritage Site" pour les générations futures. L'homme et la nature, le développement et la conservation, vont ensemble dans cette région unique et montagneuse.

Introduction

Despite much effort, national parks in Third World countries do not succeed in keeping unauthorized human users out. While in most cases this is due to insufficient control, there are, nevertheless, cases where human impact was not found to be ecologically destabilizing, and therefore no priority attention has been given to the removal of such harmless users. When tracing the reasons why humans continued to live within park areas despite legal prohibition, one must conclude that national parks were not created by those local communities in need of land for their subsistence.

Rural development, whether spontaneous on an individual basis or initiated by a group with a common

interest, is one of the least reversible forces; and it can certainly not be stopped through the mere presence of national park boundaries. The term "national", which should represent a country-wide interest and incentive to protect outstanding compositions of botanical and/or faunistic species, is often practically irrelevant. Nevertheless, the international community has perceived the value of such protected areas and supports their existence in principle. UNESCO's list of outstanding "World Cultural and Natural Heritage Sites" is an indication of this. The need for conservation is clearly demonstrated, but in practice is often in apparent conflict with the genuine needs of the local populations.

Conservation and development: conflict to coexistence

How can coexistence between nature conservation and rural development be realized in a country like Ethiopia; one of the poorest, suffering from repeated drought, hunger and famine in rural areas? Obviously, expansion is never a long-term solution to a problem, but if it is the only possible one for given circumstances, it cannot be averted.

Clearly, an area of social and ecological stability has to exist around a protected area for that protection to

Hans Hurni

Project Manager, Soil Conservation Research Project, PO Box 2597, Addis Ababa, Ethiopia

Teshome Ashine

General Manager, Wildlife Conservation Organization, Natural Resources Conservation and Development Department, Ministry of Agriculture, Ethiopia

*In association with the University of Berne and the United Nations University, Tokyo, Japan

succeed. In many situations, more attention has to be paid to the human environment, and to human users of a park and its surroundings, than to the park itself.

Simen Mountains National Park

While ecological research results have traditionally been applied to define conservation needs and to support management designs, one has to examine what role they can play for solving development problems; especially in mountainous areas. This question is relevant to a much wider range of situations than simply national park surroundings. Fifteen percent of the Earth's land surface comprises mountains, while about 40% of the world's population depends on mountain resources, especially water for irrigation. Mountain development, spontaneous or planned, has accelerated greatly in the past decades, due both to external factors and internal population growth. Because of their steepness and altitudinal variation, mountains contain very diverse ecological systems of high variability and vulnerability, high potential instability, and complex interactions between and within natural and man-made ecosystems.

While it is quickly recognized that ecological research, in the widest sense, must provide the basis for sound mountain development, it is almost as clear that up to now research results have hardly had any impact on development.

Science basis for management

The Simen mountain massif lies in Northern Ethiopia, having an altitudinal range from 1,000 m above sea level to the highest peak of the African Horn, Ras Dejen, at 4,543 m. Simen owes its outstanding botanical, zoological and land use value, as well as its breathtaking beauty, to primarily geological and climatic effects.

Despite its location in the Sahel zone, Simen receives significant rainfall, with annual totals between 500 mm and over 1,500 mm in a single rainy season from April to October. The climate of Simen can be divided into two main types. The upper type (3,200–4,500 m a.s.l.) is characterized by northerly winds all year, increasing clouding with altitude, frequent hailstorms, occasional snow in higher elevations, and frequent frost. This climate is unfavourable for most grains and pulses except barley, potatoes, and some vegetables up to about 3,700 m. The lower climatic type (1,500–3,200 m a.s.l.) is characterized by the influence of south-west monsoons, convective rains, trade winds only in the dry season, less frequent hailstorms, no snow and rare frost. This altitudinal belt is favourable for most Ethiopian crops and pulses. There are four distinct altitudinal belts of vegetation: an acacia savannah belt below 2,000 m a.s.l., a montane forest belt between 2,000 and 3,000 m a.s.l., a subalpine highland belt between 3,000 m and 3,700 m a.s.l., and an afroalpine grass steppe belt between 3,700 m and 4,400 m a.s.l.

Simen, being surrounded by old cultural centres like Aksum, Lalibela, and Gonder, has been inhabited by human settlers and cultivators for at least 2,000 years. Soil erosion damage serves as geomorphic evidence that human land use first started on the gentler slopes of the highland valleys and on the flat terrace steps at the foot of escarpments. With increasing population density and accelerating destruction by soil erosion of the gentler, first-cultivated slopes, peasants were forced to extend

their cultivation onto steeper slopes. Soil erosion rates as high as an average of 120 tonnes per ha on cultivated steep slopes explains why cultivated land will not sustain many generations of farming even if not tilled annually.

As a consequence of the need for land, forest cover in the Simen highlands has been reduced from an original 80% to about 10% at present, this still being considerably higher than the Ethiopian average of about 3%. However, there are no other sites in Ethiopia where all these belts can be viewed so completely with considerable areas of natural vegetation; together with modified vegetation of higher botanical interest. There are areas of lowland forests of different types in a near virgin state, large parts of steeper slopes still covered with giant heather and other mountain woodlands, vast areas of puna-like grasslands with often heavily grazed but also very stable types, patches of natural plant communities on wetlands, as well as an intense patchwork of man-modified grassland, shrublands and fields in all regions and belts. The effects of human influence under varying degrees of land use intensity can thus be assessed. The Simen mountains have the upper altitudinal limits of many essential tree species, this timberline in some places being little disturbed and showing a very instructive mosaic of wood and grassland depending on soil conditions and local climate. Although the land use intensity is increasing, there is still an outstanding diversified flora with rare endemic species.

The mammals and birds recorded for Simen indicate a unique ecosystem. The following list includes some major animal species endemic to Simen only, or to Ethiopia in general with Simen as an outstanding range in their distribution: the Walia ibex, *Capra (ibex) waliae*; the Simen fox in its northern subspecies, *Simenia (Canis) simensis simensis*; the Gelada baboon, *Theropitecus gelada*; the grass rat, *Arvicanthis abyssinicus*; the wattled ibis, *Bostrychia carunculata*; the white-collared pigeon, *Columba albitorques*; the thick-billed raven, *Corvus crassirostris*. Among the multitude of invertebrates, such as insects and spiders, one has to infer numerous endemic but as yet unknown forms.

Certain well-known mammals with more extensive geographical distribution are here found to deviate from their characteristic patterns either ecologically or morphologically, e.g. the golden jackal, *Canis aureus*, and the klipspringer, *Oreotragus oreotragus*. In the northern part of Ethiopia the Palaearctic region and the Ethiopian region overlap, and within the Simen range are found representatives of both regions. The ibex is a Palaearctic mammal, while the klipspringer and the bushbuck originate from the Ethiopian regions. Furthermore, the Afroalpine area represents a habitat island system; the surrounding lowland areas acting as ecological barriers, allowing ecosystems to evolve almost independently. The Ethiopian highlands, originally a large habitat, became split into small islands through the massive forest reduction from an original 90% of the area above 1,500 m a.s.l. to less than 3%. Original Afroalpine and Afroalpine communities are therefore restricted almost entirely to scattered and rather inaccessible areas. Thus the remnants of a vast natural and mountainous habitat island are numerous unconnected small natural islands, surrounded and isolated by agricultural areas. The Simen Mountains National Park, 190 km² in area, is one of the largest nearly natural habitat islands in the Ethiopian highlands. Even so, several species will become extinct, even if the park area is fully safeguarded. Most affected

are the carnivorous mammals, mainly serval, leopard and Simen fox, as well as the larger ungulates of the lower Afromontane areas not largely represented in the park, namely bushbuck and bushpig. The Walia ibex frequents mainly steep sloping habitats above 2,400 m a.s.l. Its population seems to have increased slightly in recent years to around 400 animals. Although encouraging, this present level of the world population of this subspecies is still extremely low, and according to some geneticists a minimum level of around 500 animals is necessary for long-term survival. One has to conclude that, even ignoring epidemic diseases, droughts or other catastrophes, the animal populations of the park cannot survive in the long term if the surrounding areas are altered so that natural movement of animals is denied, transforming the park into an isolated habitat.

The main problem of Simen is the conflict of space. The present landuse system is land-consuming due to lack of conservation measures together with a 2–3% per year population growth. Wildlife habitats will no longer secure the survival of the endemic species if further reduced. The overall situation of population growth, soil erosion on cultivated land, and subsequent deforestation for new land is such that even the reserves of the park would be consumed within a few years under the traditional land use system.

Many of the scientific findings are not necessarily appropriate to the rural development of Simen; for example, comparative field tests on the yields of various crops in a sample catena with and without fertilizer application showed maximum variations of only some 10%. The volcanic soils are fertile with a phosphate content of some 1%, and the main influences on yield

apparently depended more on position in the catena relative to its profile and to soil erosion from bad cultivation methods.

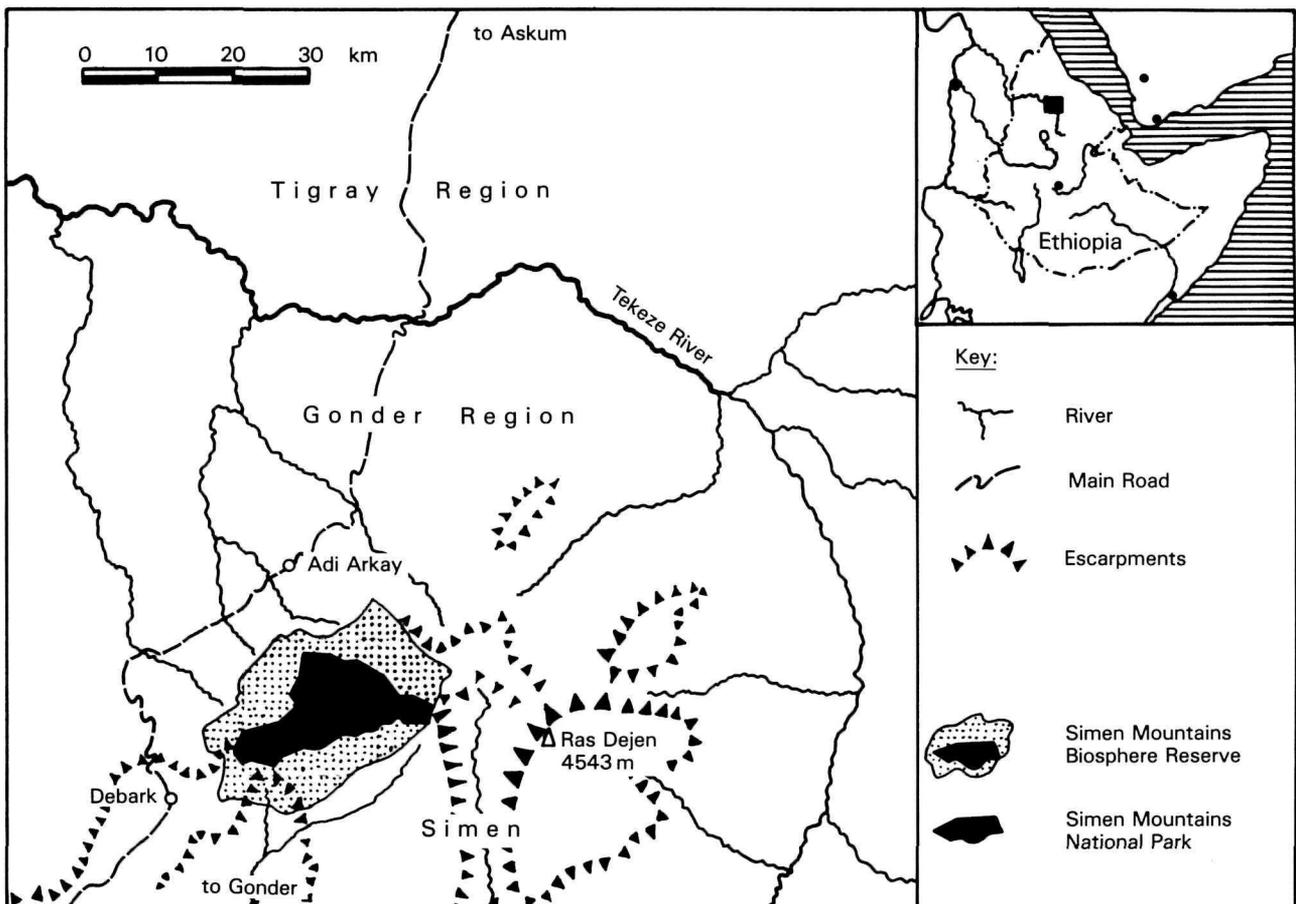
Urgent attention, therefore, has to be paid to the land use system of the area. The design of a buffer zone around the national park, including natural dispersal corridors, with a coordinated management plan for both the park and its surroundings should be the first step towards stabilizing ecological degradation. Conceptually, the formation of a Biosphere Reserve comprising the national park with an adequate buffer zone surrounding it (see Figure 1), and having the support of the national and international communities interested in preserving the natural heritage of the area, should be accompanied by the creation of a programme of social welfare for the human inhabitants in an environment of ecological stability and diversity.

A Management Plan

In 1983, the World Heritage Convention of UNESCO provided assistance for holding a workshop to review the wide range of scientific work carried out during the past 19 years in Simen. The workshop, which was held in Gonder and included a field trip to the national park, contributed to the formulation by the Wildlife Conservation Organization (WCLO) of a Management Plan for the proposed Simen Mountains Biosphere Reserve.

Large-scale topographic maps were available for the Management Plan. Unlike many other plans for national parks the Simen Management Plan is not confined to the national park alone, but includes the surrounding buffer area with its mainly rural development objectives. While

Figure 1 Location of Simen; ■, area covered by main map





Walia ibex, endemic to Simen (photo, B. Nievergelt).

offering a unique opportunity for integrated development, it also requires the coordination of at least four Ministries (Agriculture, Education, Health, Transport) and the Commission of Tourism, whose interests in the Simen mountains might be different from those of the WLCO.

Nevertheless, the rural development part of the Management Plan had to take into account specific issues related to the park, such as the wildlife corridor question, the natural revegetation problem, and the wildlife issue in education and training. It is believed that an integrated *Biosphere Reserve Development Project* would have to be financed mainly with external means, since the Ethiopian Government, while being in a position to provide wildlife administration services and normal development personnel, would probably not be able to provide the personnel and services to the extent needed for the concentrated efforts of such a project.

The Management Plan is on a 10-year basis and differentiates six management zones within the boundary of the national park itself and a surrounding buffer zone extending up to the Biosphere Reserve boundaries. Since these have been designed as watershed boundaries, the Biosphere Reserve thus consists of six major and three minor watersheds with a total area of 590 km².

The *Prime Protection Zone* consists mainly of the present day Walia ibex habitats, i.e. forests and grassland in an almost natural state in the steep escarpments. Very little will have to be planned except control and observation, so that the budget for this zone is similar to the national park's administrative budget.

The *Extensive Use Zone* provides for properly controlled grazing, including regeneration of heavily overgrazed areas. An important issue from the zoological point of view is the elimination of goats in the vicinity of Walia ibex habitats, since cross-breeding seems possible.

The *Recovery Zones* consist mainly of man-altered areas of cultivation, grassland, and degraded forests. Although there are still people living or cultivating inside the park, the total park area should eventually be freed

from cultivations in view of its already small size and its importance as a unique habitat island in Ethiopia. The greatest human pressure is coming from the lowland areas, and the first priority would be the relocation of 600 inhabitants from lowland villages inside the park to nearby areas in the buffer zone with the provision of improved facilities for living and farming. The abandoned land should then be reclaimed by an ecologically-sound revegetation programme. People living on the highlands are not of immediate threat to the park, since deforestation is limited to construction and firewood cutting and cultivated land can neither extend downwards into the escarpments nor upwards above the climatic limit for barley cultivation. However, soil erosion is a potentially important ecologically destabilizing process on cultivated land, and relocation of the highland villages from the park into the highland buffer should be realized towards the end of the 10-year-phase. In the meantime, the existing labour force could be employed on revegetation and soil conservation measures.

Park development activities would mainly consist of road improvement to all-weather conditions, siting of administrative and tourist accommodation for minimum impact, and the design of viable research programmes to monitor future developments in the park. These would include wildlife and vegetation observations, and experiments to ensure ecological stability and resilience.

However, the budget for park development represents less than one-third of the total projected budget for development of the Biosphere Reserve as a whole. The major portion of financial inputs is directed to activities within the buffer zone, such as soil conservation, afforestation and community forestry, communications and administrative and social service infrastructures, as well as some provision for planning and research.

The constraint on implementation of the Management Plan lies in the political situation characterized by civil disorder, under which conditions little progress is possible.

Some principles for resolving conflicts about protected areas

Chandra P. Gorkhali

Protected areas by their very nature proscribe certain uses of the resources being protected, and such restrictions can often cause conflicts with the people who would like to use—and abuse—the protected resources. This paper outlines some of the principles of conflict, including conflicts about facts, values, and relationships. It concludes with a few thoughts about how conflict resolution can help to improve relations between local people and protected areas.

Las áreas protegidas por su naturaleza en sí, recomiendan cierta utilización de los recursos que están siendo protegidos, y tales restricciones pueden a menudo causar conflictos con la gente, a la cual le gustaría usar—e incluso abusar—de dichos recursos. Este documento informativo da una breve descripción de algunos de los principios del conflicto, incluyendo aquellos conflictos referidos a los hechos, valores y relaciones. Concluye con algunas reflexiones sobre cómo la resolución de los conflictos puede ayudar a mejorar las relaciones entre la gente local y las áreas protegidas.

Les régions protégées, par leur vraie nature préscrivent aux certaines usages pour des ressources protégées, et ces restrictions peuvent souvent provoquer des conflits avec des peuples qui aimeraient user—et abuser—les ressources protégées. Ce papier esquisse quelques des principes de conflit, y compris des conflits sur des faits, des valeurs et des rapports. Il finit avec quelques idées sur la résolution de conflit qui aidera améliorer le rapport entre les peuples locaux et les régions protégées.

Introduction

The establishment and administration of national parks and wildlife reserves is an important part of conserving the natural environment. As in many other spheres of development, it is found that there often exists a genuine conflict of interest between the various parties involved. Whereas, on the one hand, these parks and reserves are expected to serve the aesthetic, ecological and long-term economic goals of environmental conservation, the local people might perceive that protected areas threaten their own short-term economic progress and socio-cultural well-being. While there is a need to protect the area against any further damage, the interests of the local people should never be neglected. Such conflicts of interest are, moreover, often amenable to resolution. It should not always be necessary for government to intervene by enforcing heavy-handed laws. Instead we should try to bring about a conscious change in lifestyle through proper education. Hence, it is necessary that the government acquire and adopt the necessary skills to resolve these conflicts.

Role of conflict in society

Political scientists believe that any genuine conflict of interest acts as a necessary “escape valve”, which can lead to evolutionary change in the society itself. Conflicts help us to perceive accurately the interests of diverse parties and thus to establish group identity. It has been suggested that conflict resolution is a “learning process”, since it gives us an opportunity to learn the skills of negotiation and agreement. We also often learn the real self-interest of the respective parties.

We should also be aware that some conflicts can become so exaggerated that a situation becomes dys-

functional. Decision-makers can play an important role in determining the outcome of any conflict, but all too often the decision-maker sees a conflict as an impediment to progress. It is easy to imagine a conflict situation getting out of control and thus beyond any individual intervention. Since any decision-maker would like to feel himself in adequate control of events, conflicts can become a threat to this adequacy. In such a case, one tends to avoid conflict situations or, if they cannot be avoided, attempts to “keep the lid on”. Both these responses tend to encourage dysfunctional conflict. Neither response leads to resolution and consequently there is either an increased urgency for the parties to press their demands or the conflict goes “underground”. Hence, the answer lies not in avoiding conflict, but in acquiring the necessary skills to make a significant contribution to conflict resolution.

Categories of conflict

Cognitive conflict

The government and the people may have different perspectives regarding the facts of the case. Arguments concerning facts are often put forward as conflicts of values or interest. Therefore, actual cognitive elements or facts are not always distinguishable from values or interest.

Conflict in values or goals

Parties with different values have fundamentally different perspectives from which they evaluate a proposed action. Sometimes value conflicts are difficult to distinguish from cognitive or interest conflicts. People tend to support their values and they also tend to adopt values which are consistent with their interests. In short, values and interests are interrelated so far as human behaviour is concerned. An interest conflict arises mainly because of



Wild fauna, threatened by conflicts of interest in Kirthar National Park (photo, Khan Muhammad Khan).



the economic costs and benefits arising from the action. Since these are rarely distributed equally, some parties will have a greater interest than others in the proposed action. Others may have an interest in assuring that it does not occur. Thus, whereas both parties might agree about facts and values, they may still have conflicts that are based on their interests. A national park or wildlife reserve project may be ardently supported by the government, as it will protect the biota and land from further damage or deterioration, but the local people may oppose it, if they feel the park is not in their self-interest.

Relationship conflicts

These conflicts arise from emotional motivations, concerning the personality factors involved in conflicts. One group may feel insulted or challenged by another one. A group may feel resentful that it was not consulted. When a decision favours only those groups which are well-financed and organized to present scientific data, and neglects those who primarily argue from a value base, conflicts of relationship arise. When emotional reactions emerge on the scene, dysfunctional conflict is often inevitable. For example, when a group emotionally defines itself as “revolutionary” it will have extreme difficulty in accepting a compromise even if its apparent self-interest would dictate it. Many groups react to government actions simply on the grounds of a reaction pattern acquired during youth.

Environmental conflicts are known to have arisen from all of the above sources of conflict. In the absence of an effective managerial and educational programme, fundamental value differences have occurred between local people and the State concerning the national parks and wildlife reserve programme. The local people have opposed the environmental programme, as they do not agree with the “facts” of most environmental issues. Hence, there is a full range of potential bases for conflict.

Conflict resolution

Five basic steps have been described which a conflict follows if allowed to persist without any intervention from outside. Initially the conflict is precipitated when public attention is aroused. Next, what originally began as opposition based on ignorance of facts, subsequently becomes an issue concerning the quality of life and growth of the economy. The issue is thereby transformed and proliferated. In the third phase, the groups tend to define their positions more sharply. They will aim for internal consistency. Leaders emerge inside them and they consolidate their position by declaring a firm organizational setup. Then, as the issues change and positions become firmer, there is a tendency for the level of conflict to escalate. At this stage it becomes evident that the intervention of a third party is essential, if the conflict is to reach the last stage, resolution.

The role of an arbiter varies with the nature of the conflict. The arbiter’s approach must be appropriate to the issue and the groups in question. Thus, if a conflict exists because of a difference in perspective concerning a fact, i.e. the effects of the programme, the arbiter may work with the parties to find out the “facts”. Appraisal of the impacts of an action is based on this strategy. Second, if there are conflicts of values (i.e. when people disagree over goals) the very source of information will also be challenged. Each side will credit solely those sources that favour its position. The major task of a third party in such a case is to encourage the perception of long-term interest, create conditions for reciprocal farsightedness between conflicting groups and help establish processes leading to successful resolution.

Reprinted from: *Proceedings of the International Workshop on the Management of National Parks and Protected Areas in the Hindu Kush—Himalaya*, 6–11 May 1985. Published by: King Mahendra Trust for Nature Conservation and the International Centre for Integrated Mountain Development, Kathmandu.

Resolving conflicts between traditional practices and park management

Iosefatu Reti

Like several other concepts of land uses, national parks and reserves are faced with a series of conflicting views and practices. The extent of these conflicts may vary from country to country according to the nature of their land tenure systems, the effectiveness of legislation designed to regulate, manage and control such conflicts and finally the degree of public acceptance accorded the concept through national educational and promotional activities. This paper sets out to discuss some of the common conflicts between national parks management and traditional practices and proposes some ways through which these might be effectively resolved.

Como algunos otros conceptos de los empleos de la tierra, parques y reservas naturales, estan enfrentados con una serie de pareceres y costumbres contradictorios. La extensión de estos conflictos puede variar de un país a otro, según la condición de sus sistemas de administración para la tierra, la efectividad de la legislación diseñada para regular, administrar y controlar tales conflictos y finalmente el grado de la aceptación pública acorde al concepto, por medio de actividades nacionales, educativas y promocionales. El propósito de este documento es de discutir algunos de los conflictos comunes entre las administraciones de parques naturales y las costumbres tradicionales, y sugiere algunos métodos mediante los cuales, tales conflictos podrían ser resueltos efectivamente.

Comme quelques autres concepts d'usages de terres, les parcs nationaux et les réserves sont confrontés avec une série de vues et de pratiques contradictoires. Le degré de ces contradictions peut varier de pays à pays selon la nature de leurs systèmes de tenure de terre, l'efficacité de la législation destinée à réguler, administrer et contrôler des conflits pareils et finalement le degré de l'acceptation publique accordé le concept par les activités nationales, d'éducation et de promotion. Ce papier commence à discuter plusieurs des conflits communs entre l'administration des parcs nationaux et des pratiques traditionnelles et propose quelques idées par lesquelles ceux-ci peuvent être effectivement résolus.

The national parks concept, which emerged just over a century ago, has spread widely around the world but perhaps at a much slower pace in the South Pacific region. Naturally, such an international concept cannot be met in full by all countries and authorities involved in conservation promotion and some means of accommodating the objectives have therefore been instigated.

Many have pointed out that the concept was developed in the "western" world to meet the needs of those countries and societies. But it is still desirable that individual countries have the flexibility for deciding for themselves a design by which their natural and cultural heritages can be best protected for the benefit and enjoyment of their people.

Concept of national park

A national park was defined and adopted by the General Assembly of IUCN in New Delhi in 1969 as follows:

"A National Park is a relatively large area, (1) where one or several ecosystems are not materially altered by human exploitation and occupation, where plant and animal species, geomorphological sites and habitats are of special scientific, educative and recreative interest or which contains a natural landscape of great beauty and; (2) where the highest competent authority of the country has taken steps to prevent, or to eliminate as soon as possible, exploitation or occupation in the whole area and to enforce effectively the respect of ecological, geomorphological or aesthetic features which have led to its establishment; and (3) where visitors are allowed to enter under special conditions, for inspirational, educative, cultural and recreative purposes" . . .

Obviously, this definition is an attempt to arrive at a universal standard for the setting up of national parks world-wide. However, it can be argued that the rigidity of the very high standards which are implicit in it could be counter-productive and serve to discourage efforts to set aside other areas which might have very important features worth protecting. A good example can be found in our Pacific island communities where it might be impossible to reconcile our customary land ownership system involving continued use of land in traditional ways with the requirements of the definition. Similarly, the "relatively large area" criterion will immediately require justification based on values which unfortunately are seen in the concept of dollars and cents. These requirements might therefore prevent countries anxious to implement nature conservation programmes from doing so either because: (1) they could not justify in financial terms setting aside large areas for national parks, or; (2) the areas are not large enough.

Management authority

The national park concept is relatively new and is therefore little understood especially in the South Pacific countries. Where the concept has already been introduced, several conflicts with the traditional use of land have been encountered, perhaps the most important of these lying in the character of land ownership. In Western Samoa and many other countries of the Pacific, most of the land area is held under customary ownership with the chiefs (matai) having the sole right and authority for control and use of the land. Thus the preservation of these areas for national parks or for any other use without prior agreement by these people can be seen as imposition on their rights and authority and could result in unending conflicts and unpleasant differences which could eventually lead to violent and disruptive events.

Assistant Director of Agriculture, Forests and Fisheries, Department of Agriculture, Forests and Fisheries, PO Box 206, Apia, Western Samoa

The enforcement of conservation steps by the “highest competent authority” in the country on village land could cause friction with traditional rules and by-laws and continuing disputes can therefore be expected. Many land tenure systems in the Pacific are complex and are embedded in the very heart of culture and tradition.

In some countries, including Western Samoa, the land grab of the early European settlement is still fresh in the peoples’ minds, thus making them very very cautious and reluctant to support long-term government projects affecting their land. National parks as a new concept requiring large land areas will be immediately looked at with suspicion especially if they involve village lands or those lands being disputed by villages. Negotiations will take an enormous amount of time and patience which might not even be enough to secure the success of the project.

Forests have often been considered a constraint to farming and forest produce regarded a free commodity at the peoples disposal. Hence, the protection of forest areas could be looked upon as a means of depriving the people of their traditional rights and access to these commodities. It is, therefore, suggested that in the Pacific island countries, the involvement of the highest authority may not be necessary, and that if it were enforced, could create more problems than it could solve. On the other hand, village authority could generate the interest and support that is desirable to ensure the success of national parks and reserves programmes.

Traditional use of land

Perhaps the most common “problem” of conservation programmes concerns the traditional use of land. Shifting cultivation by subsistence farmers has been identified as a continuing danger to protected areas and has been outlawed in such areas.

Nevertheless, the peoples’ need for food deserves the highest consideration and wherever possible this priority use of land is encouraged. Hence in selecting areas for conservation purposes, this need should always be borne in mind.

In our small island nations in the South Pacific, conserving huge areas may appear to undermine the desire for agricultural development; and the apparent requirement to sacrifice one for the other without compromise appears to be unavoidable. Unfortunately for conservation, it is often the protection of land that is sacrificed in favour of development. Ironically, it is the restrictions implicit in the definitions of national parks which often prevent possible compromises and is, in many cases, the very reason for voting against conservation.

With limited capital, village farmers will continue to rely on traditional methods of clearing forested land (shifting cultivation) for better soil and yields. Hence, protected areas will remain under the threat that at some stage they could lose some of their area to cultivation.

Where parts of national parks have been cultivated and settled, the problem becomes extremely emotional and political, and it is much more difficult, and sometimes even dangerous, to resolve. In some cases, small areas cleared by subsistence farmers inside protected areas might have occurred as a result of inadequate boundary marking, when the farmers might well peacefully withdraw after being made aware of the situation. The fact remains, however, that the damage has been done and the park

managers may have to decide on whether or not the case calls for prosecution.

Perhaps the most difficult situation to resolve is where permanent settlement and establishments have been created in protected areas – and this is not uncommon in the Pacific region. Obviously, the indications that such developments are permanent could mean that the situation is beyond an amicable resolution and more drastic measures might have to be enforced. Naturally, this will mean prosecution under law, but one doubts whether this could achieve the best solution, which ought to maintain cooperation with the park managers in future.

Suggested solutions

Arriving at an amicable solution on land issues is by no means an easy undertaking, and a universal solution in such circumstances would be “wishful thinking”. Unpleasant as it might be, there is often no alternative but to resolve each case individually based on the facts surrounding each problem.

The solutions suggested below, therefore, are not an attempt to propose a universal approach to resolving problems that are common to park managers. They represent, in a way, a self analysis of the role of managers.

Everyone belongs to one type of society or another, and park managers are no less members of a society because they became administrators of protected areas. Unfortunately, many have unconsciously considered themselves park managers for eight hours of the day, five days of the week, and a family man or member of society during his off-duty hours.

Understanding the manager’s role as a member of a society could go a long way in resolving some of the common problems of park management. For example, it should be much easier for him to solve disputes arising from members of his own society than for a stranger who is not accepted by the society and who does not fully appreciate its needs and traditions.

The need for a flexible concept

Analysis of the national parks concept has revealed that rigidity of its definition makes it difficult for managers and villagers alike to arrive at a satisfactory compromise for implementing it. It is, therefore, desirable that the possibility exists for national parks to be designed and established without prejudice to the peoples’ right and authority over the land. More importantly, the support and cooperation of the people must be ensured in order to guarantee the success of conservation programmes on their land. It could even be envisaged that villages might undertake conservation activities such as national parks as village projects with limited involvement by government or conservation bodies. After all, the villagers, having traditional authority over the land, could decide the success or otherwise of these programmes.

Extent of the area

Although this may vary from country to country, an area of 1,000 hectares has been widely accepted as the minimum size of a national park. This immediately places small island nations at a disadvantage in view of their limited land areas. It would therefore, be in the interest of the small islands, and of the national parks concept for that matter, to be more flexible in this aspect to permit the protection of valuable resources within the national parks concept.

It is suggested that, when appropriate, individual

countries should have the flexibility to decide for themselves; based on available land areas, the sizes of protected lands, and the need for protected features to be as far as possible representative of existing natural and cultural heritage.

Government authority versus village management

The exercise of government authority over village lands may create more problems than it can resolve, particularly if such authority would require the village people to desist from traditional practices and ways of life.

When government authority is necessarily exercised over village land, it should first be assured that: (1) funds are available to buy, rent/lease or compensate the people for the land; (2) government can count on village support for the undertaking and protection of the parks; (3) there is adequate security that the area can be protected in perpetuity.

Although some countries may be better off than others, it is believed that most Pacific island countries are faced with considerable difficulties in allocating funds for "non-developmental" projects. Furthermore, village support for government projects imposed on their land is likely to be, at best, temporary, thus making the long-term security and success of such projects doubtful.

On the other hand, national parks and other conservation projects involving modest capital could be undertaken by village people with technical and professional guidance provided by government. In this approach, the much-needed village support can be counted upon and village authority can be called upon to ensure the implementation of conservation measures by the village people. Furthermore, the people's suspicions about eventually losing their land to government can be eliminated and the long-term protection of the area therefore assured. It is crucial that village support is obtained through a sense of belonging, responsibility and involvement.

Accommodation of traditional practices

While the most common and widespread threat to national parks and reserved areas is probably encroachment of land clearing and other farming activities, it is also true that the restrictive nature of protected areas is the major cause for the farmers' refusal to support conservation projects. Obviously, some degree of accommodation must therefore be achieved.

We have to admit that it will take many years of education and promotional work before the national park concept is fully accepted and appreciated in the Pacific islands. Meanwhile, encroachment is expanding as a result of increases in population. As long as traditional farming practices continue to be outlawed from protected areas, we have to recognize the fact that protected areas will continue to diminish in size and probably disappear over a period of time.

In the medium term it is therefore desirable that serious consideration be given to ways and means of accommodating certain traditional practices within protected areas. This may call for comprehensive research into land capabilities and potential uses. It might be feasible to set up a "core area" for complete protection, with other areas made available for various forms of controlled land uses based on the capability of that land.

Naturally such an arrangement would require close supervision and strict adherence on the part of the farmers to their permitted activities within the assigned

boundaries, and to any conditions relating to them. However, this limitation on the number of people within the protected areas makes the problem easier to handle, and will provide the necessary screen to prevent outsiders from trespassing into the core zone.

Farming techniques, like other technologies are undergoing rapid changes, and current practices will eventually become outdated. In the likely event of increasing mechanization of farming activities, and the potential danger to protected areas associated with it, the inclusion of a variety of land uses by traditional practices might be considered as being compatible with national parks principles. Although perhaps now regarded as a necessary evil, such an accommodation may prove the long-term solution of those very values the parks were designed to protect, promote and develop.

Long-term comprehensive education and promotional programmes

One of the biggest questions faced by park managers and administrators is how to get popular support for a concept that is hardly understood and which may require relinquishing hunting rights and access to commodities traditionally available.

Some countries may have practical and effective legislations to facilitate the support and cooperation of the people. Others might have well-established long- and short-term training and educational programmes. However, in small island countries with limited land masses but with high rates of resource depletion, it may be necessary to look at setting up pilot national park areas for demonstration, backed by extensive educational programmes.

Availability of demonstration projects will make it easier to teach the concept and to see the effects of incompatible practices. However, educational and promotional programmes are crucial for stimulating people's interest and gaining national acceptance of the concept.

In small island countries, the concept of national parks cannot be promoted through trial and error. We have to understand right from the start what we need and what we wish to achieve. It is in this context that the need for demonstration areas becomes critical.

The examples already started in Western Samoa appear to be slowly working towards their goals and it is expected that on-going educational programmes will eventually lead to full acceptance and adoption of the concept.

Conclusion

The "conflicts" between traditional practices and national parks management are perhaps, not unique to the South Pacific island countries, but their smallness has created other problems which are uncommon in other countries. The challenge of how conventional national parks values and attitudes towards their management can be related in an agreeable manner with the fundamental and legitimate interests of landowners is perhaps the biggest issue now faced by park managers and administrators.

This paper was first published in the *Proceedings of the Third South Pacific National Parks and Reserves Conference*, Apia, Western Samoa, 24 June–3 July 1985, South Pacific Commission, 1986.

Conferences

International Symposium on Protected Landscapes: An IUCN member in the UK, the Countryside Commission, is organizing an international symposium in 1987 on Protected Landscapes—Category V areas in the CNPPA system. The purpose of the symposium is to establish the concept of protected landscapes more clearly, to raise the status of protected landscapes as an important means of linking conservation and development, and to strengthen international co-operation. The symposium will be planned in close consultation with IUCN/CNPPA and will be by invitation. It will be held in the UK, but financial assistance from the British Council and other sources will be available to help participants, especially those from developing countries, to attend. It is hoped that a draft resolution will be developed through the symposium for consideration by the IUCN General Assembly meeting in the Autumn of 1987.

20th International Seminar on National Parks: Since 1965, 629 senior park executives from 108 countries have attended this seminar. This year's dates are 29 July to 27 August, beginning in Calgary/Banff and ending in Tucson. Applications to: Hugh Bell Muller, Director, International Seminar, University of Michigan, School of Natural Resources, Ann Arbor, Michigan 48109, USA.

Commission on National Parks and Protected Areas: 27th Working Session held in Bariloche, Argentina, 9–14 March 1986. This was the third meeting of the Commission to address protected area issues in the Neotropical Realm. Seventy-one senior park agency officials and representatives from NGOs, Unesco, FAO, UNEP, and the US Department of Interior, from 22 countries, gathered for the five-day session. In the spirit of the Commission's tradition of "keeping its feet on the ground" field trips to the adjacent Nahuel Huapi National Park and the Valdez Peninsula were also offered. The working session was inaugurated by His Excellency the President of Argentina, Raul Alfonsin, who delivered a major statement on protected areas and conservation at the opening session. The technical session was co-chaired by IUCN's Vice President and CNPPA Deputy Chairman Marc Dourojeanni, and by Dr Jorge Morello, Director of the host Argentine National Park Administration. Commission Chairman Harold Eidsvik, and Executive Officer Jim Thorsell also attended. The main purpose of the meeting was to review the current conservation status of the 350 protected areas (52

million ha) in this diverse realm. Forty presentations were made on various aspects of protected area management in their respective countries, which are being published in a proceedings volume being compiled by Eric Cardich (Peru). It is clear from the discussions that parks in the realm are in serious trouble due both to constraints posed by the debt crises and from a host of threats, such as declassification, inappropriate internal development, and illegal narcotics cultivation. The situation in Brazil, Argentina, Costa Rica, and Venezuela were singled out for special attention in resolutions and discussion. A concluding output of the working session was the "Nahuel Huapi Action Strategy for Protected Areas in the Neotropical Realm". This document spells out numerous detailed objectives and activities at both national and international levels that must be strengthened or initiated to achieve more complete coverage and more effective management of parks and reserves in future. The strategy itself (named after the park in which the meeting was held) follows, in principle, IUCN's Bali Action Plan and other protected area action plans prepared for the Indomalayan and Oceanian Realms. The final draft is now being compiled by Dr Pedro Salinas (Venezuela), Chairman of the Action Strategy Working group.

Publications

Marine Parks and Conservation: Challenge and Promise

Edited by J. Lien and R. Graham

Published by the National and Provincial Parks Association of Canada, 1985, and available from: Publications NPPAC, Suite 313, 69 Sherbourne Street, Toronto, Ontario M5A 3X7, Canada. Price: Canada \$24.95 plus Canada \$1.50 postage and packing.

Natural and Cultural Heritage Interpretation Evaluation

Edited by John Marsh

Published by Trent University, Canada, 1986, and available from: Geography Department, Trent University, Peterborough, Ontario K9J 7B8, Canada. Price: Canada \$10.00.

Proceedings of a conference sponsored by the Ontario Section of Interpretation Canada and the Environmental and Resource Studies Program of Trent University.

Communications

SIR—I was concerned at the news of the suspension of the PARKS magazine. However, when we started to receive it on a free basis some years ago I was fearful of its future existence. I believe that all Parks Departments could afford something even if it is in their own currency. It would then be much more "their" magazine. Free gifts are not always appreciated in the way one would hope. Through such subscriptions it would soon be possible to see to whom it is worth sending information!

Although I expect that you have now raised the necessary funds, please still charge something. If a Parks system is too hard up to play a few rupees, or shillings, or kwachas, it is too hard up to be the slightest use in conservation! This is an over-simplification, I know, but I hope it is of use.

DAVID ANSTEY

Programme Manager, King Mahendra Trust for Nature Conservation, Nepal.

Bravo! It is good to see a positive response to the difficult financial situation of PARKS. We have already learnt the hard way that PARKS cannot totally depend on external subsidies. Although we shall be soliciting information from you in a questionnaire to be distributed shortly, please do let us know any strong views on this subject that you may wish to share with other readers of PARKS.—*Editor*

Conserving Asia's Natural Heritage: The Planning and Management of Protected Areas in the Indomalayan Realm

Edited by J. W. Thorsell

Published by IUCN, and available from: IUCN Publication Services, Avenue du Mont Blanc, CH-1196 Gland, Switzerland. Price \$15.

Proceedings of the 25th Working Session of IUCN's Commission on National Parks and Protected Areas held in Corbett National Park, India, 4–8 February 1985.

People and Protected Areas in the Hindu-Kush Himalaya

Edited by Jeffrey McNeely, Jim Thorsell and Suresh Chalise

Published by King Mahendra Trust for Nature Conservation and ICIMOD, and available from: ICIMOD, GPO Box 3226, Kathmandu, Nepal.

Proceedings of the International Workshop on Management of National Parks and Protected Areas in the Hindu-Kush Himalaya.

Advice to contributors

Contribution of manuscripts to PARKS

Authors are usually professional people engaged in management of, or in the many disciplines associated with, parks and protected areas. Authors may be invited to write on subjects selected by the editor, but those who wish to submit for consideration articles based on their own experience are encouraged to do so in consultation with the editor.

At present, manuscripts can be accepted only in English or Spanish, and will be published in the original language.

Suitability for publication is determined by many factors; including factual and technical content, timeliness and potential value to an international readership.

Letters to the editor are invited. These may refer to the subject matter of articles, introduce new ideas, or comment on topics of general interest. They may be published at the editor's discretion.

The editor would be pleased to be placed on the mailing list of magazines published by national park organizations with a view to reprinting appropriate articles in PARKS to enable them to reach an international readership.

General: Two copies of the manuscript should be submitted on paper of uniform size. Pages should be numbered consecutively. Each manuscript should be headed by a title, the author's full name, and the full postal address. Author's biodata should accompany the manuscript. Footnotes should not normally be used, but where considered to be essential they should be kept as brief as possible.

Nomenclature: Where the scientific name of a plant or animal follows the first mention of its common English or vernacular name, the scientific name should be underlined and enclosed within brackets. Common names should not be given initial capital letters unless they incorporate proper names, or, where confusion could otherwise result.

Names: Except where the anglicized version is well-established, for example "Rome" or "Moscow", the locally and presently used spelling or its accepted English transliteration should be used. In this, the National Geographic Society maps (US) or Times Atlas may generally be followed. The initials of organizations, for example, IUCN, UNESCO and ICSU, and abbreviations for countries, such as USSR, USA, DDR, and UK, require no full stops.

Units: The metric system should be used. Where, for any reason, figures based on other systems are quoted, the metric equivalents should always follow in brackets. The abbreviated forms—cm, kg, ha and so on—should not be followed by a full stop except at the end of a sentence. In dates, the full name of the month should be used.

Illustrations: Photographic prints should be glossy and should be identified by the author's name and caption reference lightly written in soft pencil on the back. Captions should be provided typed on a separate sheet, clearly identified. Tables should be included in the main body of the manuscript. Line drawings, maps or diagrams should be professionally prepared with black ink on white paper. Photos, drawings and other materials intended for reproduction should be mailed flat with protective stiffener or enclosed in a mailing tube. They should never be folded.

References: References should be cited in the text by naming the authors (or with *et al.* replacing all the names after the first if there are more than two) followed by the year of publication, for example:

(Smith, 1971); or (Smith & Jones, 1971); or (Smith *et al.*, 1971).

The reference list at the end of the text should be arranged in alphabetical order of authors surnames, in the following form:

- (1) for a scientific periodical:
Gee, E. P. 1956. Report on the status of the Kashmir stag, October 1966 *J. Bombay Nat. Hist. Soc.* 62(3): 379–393.
- (2) for a single author book:
Schaller, G. B. 1967. *The deer and the tiger*. Chicago & London: University of Chicago Press.
- (3) for a chapter from an edited book:
Packard, R. L. 1967. Octodontoid, Bathyergoid and Ctenodactyloid rodents. In *Recent Mammals of the World*, S. Anderson and J. Knox-Jones, eds. New York: Ronald Press. pp. 273–290.

Abbreviations of scientific journals should follow *The World List of Scientific Periodicals*. If this is not available the name of the journal should be given in full.

Proofs: Printers proofs will not normally be submitted for checking by authors as short time and often infrequent or interrupted mails make this practice unacceptable. Proofs will be read by the editors.

Courses

International Centre for Conservation Education (ICCE)

The International Centre for Conservation Education provides a global focus for practical conservation education activities in developing countries. Originating from a WWF/IUCN Inter-

national Education Project started in 1975, the Centre has pioneered many innovative techniques for communicating conservation, especially in design, construction and use of mobile education units and the production of audio-visual materials. It provides regular training courses as well as advisory and

consultancy services on all matters relating to the establishment and management of conservation education courses at all levels. For further information contact: The Director ICCE, Greenfield House, Guiting Power, Gloucestershire GL54 5TZ, UK.

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