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Conservation before the crisis – an opportunity in Gabon

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Much of the news we hear regarding the conservation situation in Africa portrays a continent in crisis. Increasing human population, decreasing agricultural production, loss of forest cover and mounting debt all point to a bleak future. Even in countries where conservationists have been most active the black rhino is near extinction and the elephant population is crashing. The conservation community has responded with last-ditch conservation efforts, commonly known as 'firefighting' or 'band-aid conservation'. This paper examines an opportunity to practice 'conservation before the crisis' in Gabon, a country with time on its side to address its long-term conservation and development needs.

Gabon is covered with vast areas of undisturbed tropical forest, and this, coupled with its low human population and one of the highest standards of living in Africa, makes it one of the few countries in the world that still offer exceptional potential for conservation. The sparse and concentrated human population in Gabon means that deforestation rates are very low (R. F. W. Barnes, pers. comm.). The country's tropical forests are among the most biologically diverse in Africa (White, 1983; Oates, 1986). Gabon provides an opportunity to design a biologically sound system of protected areas and to incorporate conservation planning into the country's overall development plans.

Little attention has been paid to conservation within Gabon, either by the Government or international conservation organizations. The lack of rapid, uncontrolled development means that the country is relatively untouched by the environmental problems that have affected other developing countries. The Gabonese Government has begun to realize that development must take the country's natural heritage into account and has begun to make considerable investments in conservation. This acknowledgment of the environment in development planning reflects an important change in conservation awareness.

This paper reviews the status of natural resource conservation in Gabon and proposes broad guidelines to develop a country programme conforming to local priorities and needs. It uses as its basis the findings of a joint WWF/IUCN project (Nicoll and Langrand, 1986). This was conducted at the request of the Gabonese Government, which has now endorsed its recommendations.

Biological significance

Gabon is found entirely within the Guineo–Congolian regional centre of endemism (White, 1983), the most biologically diverse region in the African continent. The area has enjoyed a stable, moist climate since the Pleistocene, making it one of the main refugia for African tropical-forest species.

Situated on the equator, Gabon experiences little seasonal change in its climate. Daily temperatures average near 27°C throughout the year. The country is broken by mountain ranges rising to 1000 m in the north-west, north-east and south-centre, which results in important microclimatic differences. Gabon is dominated by the Ogooué River, which drains most of the country, and creates numerous wetland areas near the coast.

Differences in rainfall distribution, topography and soils affect the forest structure, resulting in a mosaic of important and unique habitats that any conservation strategy must consider.

Coastal Gabon has the highest rainfall in the country, averaging between 3000 and 4000 mm

Elfin thicket covering the crests of the Belinga Mountains in north-east Gabon (*C. E. G. Tutin and M. Fernandez*).

per annum, with high humidity throughout the year. The region has a very distinct flora with a high number of endemics. Most notable is the okoumé *Aucoumea klaineana*, a West African endemic, which is the dominant species and a preferred timber tree for veneer and plywood. Gabon accounts for about 90 per cent of the world's market in okoumé. The coastal area is interspersed with numerous lagoons, rivers and mangroves. Threatened fauna include the manatee *Trichechus senegalensis* and leatherback turtle *Dermochelys coriacea*. This zone is probably the only place remaining in Africa where the western lowland gorilla *Gorilla g. gorilla* and forest elephant *Loxodonta a. cyclotis* can be found on Atlantic Ocean beaches.

Further inland, rainfall decreases. In the extreme north-east okoumé trees and logging activity disappear completely, leaving vast areas of primary forest still undisturbed. This region, along with adjacent areas of southern Cameroon and north-west Congo, form what is probably the largest intact forest block remaining in Africa. Important mammalian species include the forest elephant, western lowland gorilla, chimpanzee *Pan t. troglodytes*, mandrills *Mandrillus sphinx*, black colobus *Colobus satanus* and bongo *Tragelaphus euryceros*. An endemic monkey, new to science, *Cercopithecus solatus*, discovered in 1984 in the Forêt d'Abeilles ('Forest of the Bees'), has a limited distribution in central Gabon (Harrison, 1988).

The crests of the Belinga Mountains in north-east Gabon are covered, between 950 and 1000 m, with a type of vegetation known as 'elfin thicket' found nowhere else in Africa. This mysterious 4–8-m tall thicket is clothed in epiphytic orchids, bryophytes and lichens down to ground level (White, 1983).

Savannahs make up 15 per cent of Gabon, primarily located in the south-east and south-west. They are believed to be secondary, resulting from human activity dating as far back as the Neolithic. Gallery forests are found throughout this formation. The country's only lions *Panthera leo* were found in the south-east savannahs, but are now probably extinct.

Approximately 85 per cent of Gabon is covered in tropical forest estimated to contain 8000 species of plants (Davis *et al.*, 1986) and a

diverse fauna of over 150 mammals and 600 birds (Nicoll and Langrand, 1986). Forest elephants are distributed throughout the country and locally are very common (R. F. W. Barnes and K. L. Jensen, pers. comm.). Gabon may hold the largest and probably most stable population of this species in the forests of Africa. It is equally an important sanctuary for primates, with at least 19 species recorded (Oates, 1986). Recent surveys indicate that the country has very large populations of western lowland gorilla and chimpanzee (Tutin and Fernandez, 1984).

Gabon thus offers the opportunity to protect not only specific threatened species, such as the elephant, manatee, gorilla and chimpanzee, but also intact tropical forest ecosystems. If central Africa's biological diversity is to be understood and preserved, conservationists must act to capitalize on this opportunity.

Conservation threats

Gabon's forests and wildlife have generally been protected from excessive exploitation because vast mineral resources, including petroleum and natural gas, manganese and uranium, have provided the income necessary to drive the economy. As commodity prices have fallen, however, the Government has been forced to reduce its budget (from $2.5 billion in 1986 to $1.4 billion in 1987), resulting in pressure to boost other sectors of the economy, especially timber (Arnaud, 1987).

Logging in Gabon is highly selective, but nonetheless significant. Its impact is twofold: direct habitat alteration through felling trees and constructing roads, and indirect disturbance by opening up new areas to hunting and settlement. Logging is currently permitted in Gabon's existing protected areas, despite the fact that laws totally protect flora as well as fauna within the reserves. Workers at forestry camps hunt with guns and snares, and hunting usually continues long after the logging is completed since the new roads permit entry into previously inaccessible areas. All except the smallest animals are regularly hunted for meat and, while subsistence hunting by small rural communities has a limited impact, professional hunters who provide meat for larger towns can decimate the fauna of a particular area in a short time (Tutin and Fernandez, 1987). It is estimated that four tons of bush meat are brought into Libreville each month.

The Direction de la Faune et de la Chasse (Gabon's Wildlife Department) is located within the Ministry of Water and Forests and is dominated by the larger Forestry Department. The Wildlife Department requires support in the form of funding and training to control and monitor environmental impacts within the forest. Gabon needs trained professionals to deal adequately with environmental protection.

Conservation profile

Gabon has few people. The official census in 1980 recorded 1,232,000 inhabitants. Outside organizations estimate the population at below one million (World Bank, 1986). An exodus from rural areas has resulted in a concentration of the population around urban centres and along main transportation routes, leaving

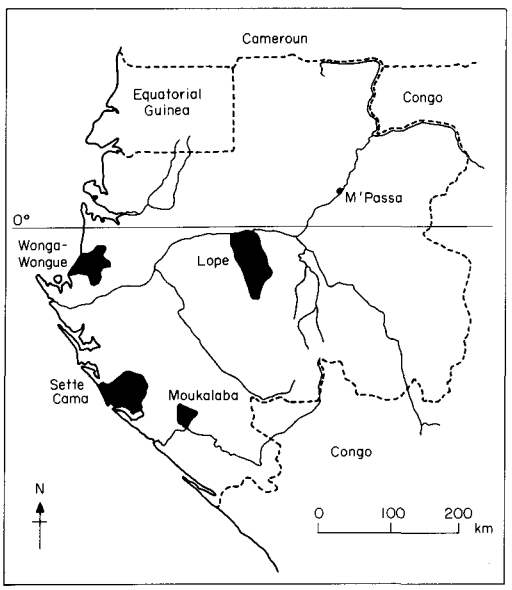

Figure 1. Protected areas in Gabon.

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vast areas of low or no population and limited pressure on the forest ecosystem.

No national parks exist in Gabon, but there are five protected areas (Figure 1). Of these, three are Faunal Reserves administered by the Wildlife Department of the Ministry of Water and Forests: Setté Cama (3500 sq km) on the southern coast, Moukalaba (1000 sq km) in the south-west, and the Lopé (5000 sq km) in central Gabon (cf. Mackanga, 1986). Wonga-Wongué (2000 sq km) in the north-west is a Presidential Reserve and is run privately. M'Passa (100 sq km) in the north-east is a Biosphere Reserve run by the National Centre for Scientific and Technical Research, which has an ecological laboratory there. A site in the north-east has been proposed for protected area status by Nicoll and Langrand (1986) and World Wildlife Fund US is currently supporting a survey of this area.

Management and protection practices vary: Wonga-Wongué is well protected from poachers, although some official hunting occurs and a number of exotic species have been introduced; M'Passa enjoys no special protection and as there are very few scientists now working at the ecological laboratory, hunting has become a serious threat. The Wildlife Department has recently built camps at the Lopé (1982) and at Moukalaba (1986), but Setté Cama is not currently staffed and the oil company Shell–Gabon has a base within the reserve.

The protected-area system had its beginnings in 1946, with the French Equatorial Africa administration (creation of Lopé-Okanda Reserve). This structure has been modified by a number of different laws and the protected-area system expanded by the Gabonese Government (laws of June 1960, November 1962, April 1971, July 1982, March 1987). Gabon has designated 38 species as fully or partially protected. The Government is currently in the process of acceding to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Algiers Convention on African Wildlife Conservation.

The Gabonese Government has recognized the necessity for a forest management strategy

Logging in the Lopé Reserve (*E. McShane-Caluzi*).

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that gives full attention to environmental protection as well as commercial forest exploitation. On the conservation side, the strategy should include an inventory of forest resources, identification of endangered species, protection of the country's flora and fauna through a representative system of protected areas, strengthening of the present reserve system, launching of a conservation awareness campaign, and adopting a policy of rational exploitation of wildlife. On the development side, the strategy should include promotion of rational forest exploitation without irreversible degradation of the resource base, improvement in the processing and marketing of timber, and increased participation by Gabonese nationals in forestry development.

Unfortunately, the Ministry of Water and Forests does not have sufficient staff to develop such a comprehensive strategy. Further emphasis needs to be placed on training to improve the in-country ability to help the Government in matters related to such a proposed forest strategy.

Currently, there are no indigenous conservation non-governmental organizations (NGOs) in Gabon. There are, however, a number of private sector groups, such as the Syndicat des Forestiers du Gabon, which represent the timber industry. Resolving issues such as logging within protected areas and development of a forest management strategy will require close collaboration between the private sector, the Government and conservation organizations. The Government has indicated that there is room for co-operation. Local oil companies and the Centre Internationale de Recherches Medicales de Franceville have also provided support for conservation initiatives in Gabon in the past and may prove a source of continued support.

Blue duiker taken by subsistence hunting (*M. Fay*).

Outline for a country programme in conservation

A strategy for biological resource conservation in Gabon needs to be based on the following premises.

* Gabon is one of the most biologically important countries in Africa.
* The recent drop in commodity prices for Gabon's traditional exports has shifted emphasis to the forestry sector, increasing pressure on the tropical-forest ecosystem.
* There is an urgent need to bring conservation into the development process in Gabon.
* There is a need to augment and improve management within Gabon's protected-area system.
* Options still exist in Gabon to develop a sound conservation programme given the country's low and concentrated population, relative prosperity and vast areas of pristine tropical forest.

A successful conservation programme in Gabon must address the following objectives (WWF, *in litt.*).

First, institutional self-sufficiency so that government organizations, NGOs and university research centres are effectively designing, funding

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and implementing conservation activities.

Second, development of a cadre of skilled conservationists having the full range of necessary skills.

Third, creation of a culturally appropriate conservation ethic based in local culture, causing conservation to rank high among national priorities.

Fourth, an ecological information base permitting informed conservation and development decisions.

Fifth, systematic conservation of important biological resources.

Sixth, a development programme seeking economic progress in a manner consistent with the long-term maintenance of ecological processes and the sustainable use of wildlife and ecosystems.

For such a broad programme to be successful, it must not seek to identify simple solutions to complex problems. Most people who utilize natural resources practice multiple approaches in meeting their needs. This programme must develop a similar strategy at both the national and local levels, which should increase flexibility and receptivity to change, while at the same time spread exposure to risk.

A major focus of the programme should be related to long-term sustainability and self-sufficiency. A strategy to address these fundamental questions should include: use of local personnel; keeping recurrent costs low; stressing self-reliance and avoiding dependency on foreign funds and exotic technologies; and use of local technical knowledge.

As discussed by Aka (1985), development cannot be achieved by proxy. A country develops itself or not at all, and it can develop itself only through a strategy of self-reliance and through the commitment and energy of the people. Developed countries have the financial resources and technical expertise to help. If conservation in Gabon is to be successful it must have the support of the country's political leadership as well as the support of the rural communities who rely on resources on a daily basis.

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