

The dangers of conservation by rural development – a case-study from the forests of Nigeria

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*The Okomu Forest Reserve in south-west Nigeria contains a 114-sq-km wildlife sanctuary that is an important refuge for several threatened species, including the white-throated guenon *Cercopithecus erythrogaster*. A conservation project that started in Okomu in 1987 focused initially on protection, but the emphasis recently shifted to a programme of agricultural development assistance to migrant farmers in the reserve. This approach, which appears to follow the philosophy espoused in IUCN/UNEP/WWF's *Caring for the Earth*, may hasten rather than prevent the destruction of this remnant tropical forest and its wildlife.*

Introduction

The south-western part of Nigeria was the site of some of the earliest ecological studies of the tropical rain forest and features prominently in the classic book by Paul Richards (1952). In the last 30 years south-west Nigeria has suffered a major loss of natural forest from excessive logging and conversion to plantations and farmland. One of the least damaged areas of remaining natural forest is the Okomu Forest Reserve, which, although logged, still supports a small population of forest elephants and several threatened primates, including white-throated guenon *Cercopithecus erythrogaster*, red-capped mangabey *Cercocebus torquatus* and, probably, chimpanzee *Pan troglodytes*. Even in Okomu, plantations and farms have been spreading, with much of the farming being carried out by immigrants.

In 1985 a wildlife sanctuary was established inside Okomu Forest Reserve and in 1987 a project was started to improve protection of the sanctuary and develop conservation-orientated management of the reserve as a whole. Among the most recent actions taken by this project, which has received some assistance from foreign donors, have been the introduction of new crop varieties to farmers living inside the reserve and the construction of a

small plant to help these farmers process cassava into *garri* (ground and dried cassava). *Garri* from Okomu is not just consumed locally; much of it is sold to traders, some coming from Lagos, 200 km away. By making farming inside the reserve more profitable, such development projects may promote immigration into the forest.

Using Okomu as an example, this paper discusses some of the dangerous consequences that can arise when conservation organizations put into practice the human-development orientated philosophy of *Caring for the Earth: A Strategy for Sustainable Living* (IUCN *et al.*, 1991).

The forests of Nigeria

Closed-canopy tropical moist forest (including swamp forest) probably once covered at least 116,000 sq km of southern Nigeria. Today that forest is restricted largely to government-controlled forest reserves, which cover about 16,500 sq km in total (Nigerian Environmental Study/Action Team, 1991). The annual rate of loss of all forest in Nigeria was estimated to be 0.7 per cent in 1981–90, and of moist deciduous forest 0.8 per cent (World Resources Institute, 1994). These estimates refer to the

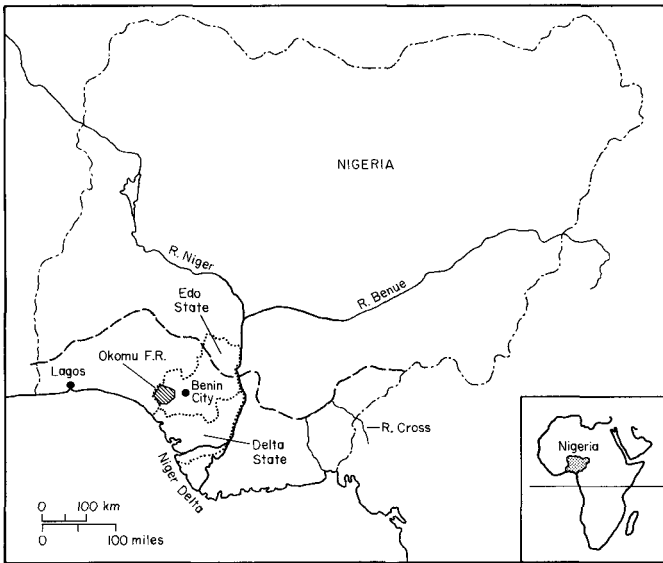


Figure 1. Nigeria, showing the position of Okomu Forest Reserve. Dashed line is the northern boundary of the moist forest zone.

loss of remaining forest; the annual loss rate has probably declined since 1980 because the amount of exploitable forest outside reserves has shrunk (Barnes, 1990).

There are four distinct major biogeographical communities in the moist forest zone that spans southern Nigeria: west of the River Niger, between the Niger and the River Cross, east of the Cross, and in the Niger Delta (Figure 1). The least disturbed of these forest communities lies in the east, where the Cross River National Park was created from several large forest reserves in 1991.

Between the Cross and Niger Rivers is one of the densest human populations in all of Africa; here most of the natural forest was converted long ago, except in sacred groves, which preserve relics of the original flora and fauna (Oates *et al.*, 1992). West of the Niger and in the Niger Delta the forests have been heavily exploited but some important areas still remain, one of which is the Okomu Forest Reserve.

History of the Okomu Forest Reserve and its exploitation

Okomu lies west of Benin City and immediately south of Udo, in what is now Edo State.

A large part (777 sq km) of the present forest reserve was gazetted in 1912, and in 1935 an extension of a further 411 sq km was added to the north and east. The Forestry Department of the then Bendel State Ministry of Agriculture and Natural Resources assumed management responsibility for the reserve in 1970. In 1991 Bendel was divided into Edo and Delta States and control of Okomu passed to Edo.

From its inception as a reserve it was planned that Okomu would be managed as a source of timber, and in the 1920s and 1930s the south-eastern part of the reserve was thoroughly logged (Lowe, 1992). In 1945 the Tropical Shelterwood System (TSS) was introduced as a management technique; aimed at increasing the density of valuable tree species, TSS involved cutting climbers and non-commercial species in the understorey, and poisoning middle-storey shade-casting trees. It soon became apparent that TSS did not work effectively in Nigeria and it was abandoned in the early 1960s (Lowe, 1992).

Another management system introduced in 1945 was the *taungya* system, which became increasingly important after the abandonment of TSS, and especially after the civil war (Nigerian Environmental Study/Action Team, 1991). The *taungya* system was first used for

teak cultivation in colonial Burma in the 19th century (Bryant, 1994). Under taungya, an area of forest is allocated to local farmers to be cleared and farmed after it has been logged. In exchange for farming rights, the farmers are supposed to plant seedlings of useful tree species, provided by state forestry nurseries. Among commonly planted trees are two exotics, teak *Tectona grandis* and gmelina *Gmelina arborea*. The trees are intended eventually to replace the food crops.

Taungya has generally proved a failure as a forestry technique in Nigeria. As word of farming opportunities in government reserves spread, people from land-hungry parts of the country were attracted to the forests. Although the original taungya scheme had envisaged using local villagers, Okomu was soon attracting Igbos from densely populated eastern Nigeria, Urhobo and Esan people from the south and east of Bendel, and Bini people from around Benin City. Faced with shortages of funds and personnel, Bendel and other state forestry departments became increasingly unable to provide sufficient tree seedlings or supervision; at the same time, farmers devoted more care to their food crops than to any planted trees.

In a 1950 Working Plan for Okomu it was proposed to create just 14 ha of taungya each year until 1970, but in the mid-1960s the annual area farmed began to increase; in 1988 a total of 515 ha was assigned to taungya farming (L. J. T. White, pers. comm.). Faced with this disastrous trend, the Bendel State Forestry Department revised its policy on taungya farming, noting that the system had 'degenerated into ... a peasant shifting cultivation system which could eventually liquidate the forest reserves' (Aimufia, 1988). Under the new policy, no new farmers were allowed to participate in taungya, and all farms (in which tree seedlings would have to be planted) would have to be in previously farmed areas.

Taungya farming is not the only factor threatening Okomu. In the late 1970s and early 1980s there was an intensification of logging in Nigerian forest reserves, much of it illegal or only lightly controlled. This was promoted by a rising demand for timber, a



Logging road in the wildlife sanctuary at Okomu in October 1987, shortly after logging was ended (J. Oates).

decline in state funding for forest management, and a proliferation of small sawmills following a federal government ban on the export of unsawn logs. Greatly increased oil revenues started to flow into Nigeria in the 1970s as a result of OPEC pricing policy. Some of this oil wealth inevitably found its way into the hands of people who could use it to obtain logging concessions in forest reserves such as Okomu; these concessions usually disregarded existing management plans.

Even more destructive than uncontrolled logging has been the proliferation of commercial plantations in Nigerian forest reserves. In 1977, 156 sq km within Okomu were de-reserved and allocated to a federal government oil-palm plantation project backed by European funding. By 1991, about 60 sq km of forest had been cleared and planted with oil palm. In 1987 and again in 1992, two further blocks of 20 sq km each were allocated by the

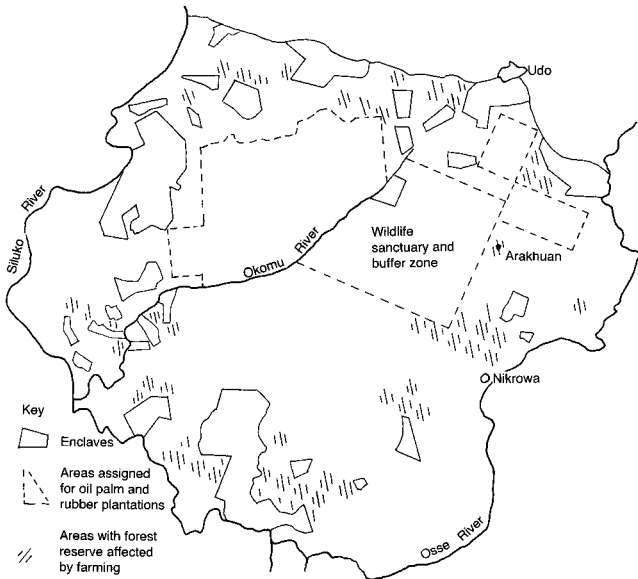


Figure 2. Use zones in Okomu Forest Reserve.

state government to rubber-growing companies (Figure 2).

The annual rate of human population increase in Nigeria has been estimated at 3.1 per cent (World Resources Institute, 1994). As the population and economy has grown, the demand for meat has risen and hunting in forest reserves has increased. This trend was aggravated in the 1970s and early 1980s by an artificially high currency exchange rate, which made imported shotgun cartridges relatively inexpensive. Much of the 'bushmeat' hunted in Okomu and other reserves is sold to city dwellers rather than being consumed locally (Anadu *et al.*, 1988).

The conservation project

In 1982 P. Anadu and I conducted a survey of forests and wildlife in south-western Nigeria, concentrating on Bendel State. We observed the rapid degradation of the natural vegetation of forest reserves and the excessive levels of uncontrolled hunting. The least disturbed and largest of all the forest reserves we visited was Okomu, which we judged to contain the largest surviving population of the rare white-

throated guenon (Anadu and Oates, 1982). We presented the Bendel Government with a proposal for the creation of an inviolate sanctuary of 190 sq km in the centre of Okomu and for the introduction of more careful management in the rest of the reserve, especially the areas that remained under forest.

In response to lobbying by the Nigerian Conservation Foundation (NCF) and others, Bendel partially implemented our recommendations, gazetiting a wildlife sanctuary at Okomu in 1985. However, the sanctuary covered only 67 sq km and loggers were allowed to remove many large trees within it before it became effective. In October 1987 the NCF launched the Okomu Forest Project, initially supported by modest funds raised almost entirely within Nigeria. Ecological surveys were initiated and a small protection force of NCF, state and federal employees was formed, which soon brought poaching under control within the sanctuary (White, 1988). In 1990 a full-time project manager was recruited and in the same year the state government agreed to add to the sanctuary a 1.6-km-wide buffer zone in which farming and logging would be prohibited. This increased the effective size of the sanctuary by 47 sq km to 114 sq km.

Forest at the edge of one of several 'lakes' in the Okomu sanctuary; these open marshy areas, which are good places to view birds, become flooded during the rainy season (J. Oates).



Meanwhile, the Nigerian-based Leventis Foundation approved funds to build an education centre, office and staff housing at Arakhuan on the edge of the sanctuary (Orhiere, 1992).

By 1990 the tougher policy of the Bendel State Forestry Department towards taungya farming and the more effective control of poaching within the wildlife sanctuary were beginning to restrict economic opportunities for the migrant farmers and hunters in Okomu; some of them started to return to their original homes. For example, more than 60 Igbo migrant families were reported to have left two settlements in 1990 (Omorodion, 1991).

Sustainable development comes to Okomu

In 1990 the first moves were made to introduce a 'development' component into conservation at Okomu. The British Overseas Development Administration sent a team of consultants to prepare a proposal for conservation, forest management and rural development in and around Okomu Wildlife Sanctuary. In the following year, NCF obtained WWF support to appoint a new project development officer, who began to seek funding not only for protection efforts, but also for a project that would work with people living

in the reserve to provide 'access to, and advice on, new varieties of crops and credit for various income generating activities' (NCF funding proposal, 1992).

In proposals developed for this new phase of Okomu conservation, the forest reserve outside the small wildlife sanctuary was referred to as a 'support zone'. This concept had already been applied by WWF in the planning of the Cross River National Park, where the zone was defined as the land of 39 villages lying close to the park; these Cross River villages are to be provided with assistance in developing improved agricultural techniques and given access to special credit and development funds in return for their co-operation in the management of the new park (Caldecott *et al.*, 1989).

The new proposals for Okomu elicited support from the Ford Foundation for a socio-economic survey of four settlements within the reserve near the wildlife sanctuary. This survey was conducted by a sociologist in 1991 and generated a report that recommended that people in the settlements should be given help to set up livestock-rearing projects and a garri processing facility. It also suggested that road access should be improved (Omorodion, 1991). The report paid slight attention to the fact that most people in the surveyed settlements were immigrants; instead, it concluded that 'land has been alienated from inhabitants in these villages.' Echoing the language of



Site of the garri processing mill at Nikrowa in the Okomu Forest Reserve, January 1994 (J. Oates).

Caring for the Earth, the report noted that 'conservation should foremost have the well-being of the resident inhabitants as a priority.'

When I visited Okomu in August 1992 I found that some of these recommendations were being implemented. An agricultural development officer was attached to the conservation project and garri mills and piggeries were being planned. After I expressed my misgivings about the likely outcome of this programme, NCF undertook a review. It was decided that pilot work on a demonstration farm, piggery and cassava mill should continue, but it was agreed that these should be located outside the sanctuary buffer zone (although still nearby, and inside the forest reserve). When I returned to Okomu at the end of 1993 I found that the cassava mill and piggery had been completed. Meanwhile, protection efforts were suffering from a lack of motivation and long-term funding, and I was told that poaching of timber and wildlife in the sanctuary had recently increased.

Rather than encouraging the observed trend among migrants to leave the reserve, the new development-orientated conservation programme is threatening to reverse it, by endorsing the rights of people both to farm inside a forest reserve and to expect improvements in their standard of living.

Discussion

Caring for the Earth: A Strategy for Sustainable Living (IUCN *et al.*, 1991) builds on the *World Conservation Strategy* (IUCN *et al.*, 1980). The philosophy developed in these important policy documents has, I believe, played a major role in influencing the conservation programme that has been pursued at Okomu. The general theme of *Caring for the Earth* is anthropocentric, with improvement in the quality of human life seen as a fundamental goal; it argues that conservation and development should be integrated, and that human societies must make a commitment to sustainable living. The importance of involving local communities in the design, management and operation of protected areas is stressed.

Robinson (1993) has provided an important critique of *Caring for the Earth*, focusing on the issue of sustainable use. He has noted that attempts to manage natural resources sustainably have seldom been successful (see also Ludwig *et al.*, 1993), and he also faults *Caring for the Earth* for its almost exclusive focus on human beings. He argues that many species and communities will be lost unless they are protected and managed for their intrinsic value, rather than because of their perceived benefit to humans.

While the *World Conservation Strategy* and *Caring for the Earth* have played major roles in encouraging the community development



A taungya farming area in the Okomu Forest Reserve (J. Oates).

approach to conservation, they are not the only forces that have led to its wide adoption. I think the approach has also become common because of the relatively very large amounts of money available from bilateral and multilateral development organizations for projects that combine development with conservation. Although substantial funding may therefore be available to conservation projects that contain a 'development' component, this component can launch a project on a slippery path to ecosystem degradation.

An emphasis on development has led many individuals and organizations to de-emphasize protection as a conservation tool. This can lead to very serious consequences in areas such as West Africa, where relatively natural ecosystems are often now reduced to small patches in a landscape densely populated and heavily modified by people. In these situations, small populations of large animals or trees can be rapidly driven to extinction by poaching in protected areas. In many places a relatively large amount of money is being spent devising rural development systems that might one day help protect forests and their wildlife, but might also lead to their more rapid extinction, while often little is being done to actually protect these resources here and now. For example, at the beginning of 1994, the Edo State Forestry Department had no functioning vehicle to assist its staff in managing 5600 sq km of widely scattered

forests; as a result the department's management policies are very poorly enforced.

Conclusions

The example of Okomu suggests that a development approach to conservation that places its strongest emphasis on immediate human needs rather than on the protection of nature can promote the destruction, not the conservation, of tropical forest. This approach may reinforce some of the processes that most threaten the forest's survival (in particular, migration and agricultural intensification). Reserves and parks are indeed more likely to be effective if they involve the people living near them; but it is more appropriate to involve people in protection work, in tourism, in sustained-yield forestry and in research than to encourage their agricultural activity.

In countries like Nigeria, where forests and wildlife populations are becoming reduced to small, highly threatened remnants, protection should be the first priority in a conservation programme. Before money and effort are expended in development projects near protected areas in such places, the rationale for and probable long-term consequences of these projects should be studied carefully and critically.

In particular, closer attention should be paid to relationships between conservation, devel-

opment and migration. The threat posed to Okomu by migrant farmers is not a unique case; it is an example of a widespread and growing conservation problem in Africa. Economic difficulties and population growth are leading more and more people to seek opportunities at the 'frontier' far from home. Elsewhere in West Africa, large numbers of immigrants from northern Côte d'Ivoire are putting pressure on the Taï National Park (Sayer, 1991), while a 1993 survey of 47 farmers around the Kakum National Park and Assin Attandaso Game Production Reserve in south-central Ghana found that all but one were migrants who had moved there to grow cocoa (R. F. W. Barnes, pers. comm.). By making former economic backwaters more appealing to migrants, development projects associated with protected areas may end up sowing the seeds for the ultimate destruction of these areas.

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References

- Aimufia, D.I. 1988. *Taungya farming in Bendel State*. Press Release, Bendel State Ministry of Agriculture and Natural Resources, Benin City.
- Anadu, P.A., Elamah, P.O. and Oates, J.F. 1988. The bushmeat trade in southwestern Nigeria: a case study. *Human Ecology*, **16**, 199–208.
- Anadu, P.A. and Oates, J.F. 1982. *The status of wildlife in Bendel State, Nigeria, with recommendations for its conservation*. Report to the Bendel State Ministry of Agriculture and Natural Resources.
- Barnes, R.F.W. 1990. Deforestation trends in tropical Africa. *African Journal of Ecology*, **28**, 161–173.

- Bryant, R.L. 1994. The rise and fall of *taungya* forestry: social forestry in defence of the Empire. *The Ecologist*, **24**, 21–26.
- Caldecott, J.O., Bennett, J.G. and Ruitenbeek, H.J. 1989. *Cross River National Park (Oban Division): plan for developing the park and its support zone*. WWF and ODNRI, London.
- IUCN/UNEP/WWF. 1980. *World Conservation Strategy: Living Resource Conservation for Sustainable Development*. IUCN/UNEP/WWF, Gland.
- IUCN/UNEP/WWF. 1991. *Caring for the Earth: A Strategy for Sustainable Living*. IUCN/UNEP/WWF, Gland.
- Lowe, R.G. 1992. End-note, Okomu Forest Reserve. *The Nigerian Field*, **57**, 91–106.
- Ludwig, D., Hilborn, R. and Walters, C. 1993. Uncertainty, resource exploitation, and conservation: lessons from history. *Science*, **260**, 17, 36.
- Nigerian Environmental Study/Action Team. 1991. *Nigeria's Threatened Environment: a National Profile*. Nigerian Environmental Action/Study Team, Ibadan.
- Oates, J.F., Anadu, P.A., Gadsby, E.L. and Werre, J.L. 1992. Sclater's guenon – a rare Nigerian monkey threatened by deforestation. *National Geographic Research and Exploration*, **8**, 476–491.
- Omorodion, F.I. 1991. *Socio-economic survey of Okomu Forest Reserve*. Report submitted to the Nigerian Conservation Foundation, Lagos.
- Orhiere, S.S. 1992. Okomu Wildlife Sanctuary, Okomu Forest Reserve, Edo State. *The Nigerian Field*, **57**, 91–102.
- Richards, P.W. 1952. *The Tropical Rain Forest*. Cambridge University Press, Cambridge.
- Robinson, J.G. 1993. The limits to caring: sustainable living and the loss of biodiversity. *Conservation Biology*, **7**, 20–28.
- Sayer, J. 1991. *Rainforest buffer zones: guidelines for protected area managers*. IUCN – The World Conservation Union, Gland.
- White, L.J.T. 1988. The Okomu Forest Project. *Primate Conservation*, **9**, 28–29.
- World Resources Institute. 1994. *World Resources 1994–95*. Oxford University Press, New York.
- WWF/NCF Project Development Officer. 1992. *Okomu Forest Reserve Project: funding proposal*. Typescript, Nigerian Conservation Foundation, Lagos.
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