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Abstract: Wildlife conservation in Nigeria from 1914 to the present day is reviewed. The most significant developments in the last decade include the creation of the Kainji Lake National Park at New Bussa, Nigeria signing the ACCN in 1968 and CITES in 1974, and the signing of an agreement with the Republics of Chad, Niger and Cameroon for the joint control of the fauna and flora of the Lake Chad basin in 1977. Cheetahs are listed as an endangered species where hunting and trade is prohibited.

Progress in the Conservation of Nigeria's Wildlife

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ABSTRACT

Wildlife conservation in Nigeria from 1914 to the present day is reviewed, and both the historical and socio-economic reasons for the lack of effective conservation measures are outlined. These include: official apathy during the colonial times; the low priority rating of wildlife as reflected in inadequate funding and administrative arrangements; weak enforcement of, and inadequacies in, existing wildlife laws; excessive demand for land, bushmeat and fuelwood by a rapidly expanding human population, and a traditional lack of concern for the welfare of wild animals.

The most significant developments in the last decade include the creation of the Kainji Lake National Park (area 5341 km²) at New Bussa (1975), the signing of an agreement with the Republics of Chad, Niger and Cameroon for the joint control of the fauna and flora of the Lake Chad basin (1977), the launching of the Nigerian Conservation Foundation, a private conservation lobby affiliated to the WWF (1982), the promulgation of a law to control international traffic in endangered species (1985), the drawing-up of a draft national conservation strategy (1985) and the creation of a rain forest sanctuary in Bendal State (1985).

Since these measures in themselves do not guarantee the preservation of wildlife, it is suggested that more funds be provided for recruitment of manpower, procurement of anti-poaching equipment and infrastructures, and conservation education, while modern farming methods should be encouraged in order to combat habitat destruction through slash-and-burn agriculture.

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INTRODUCTION

Wildlife conservation in Nigeria, with regard to game protection and management, has had a long, but not very remarkable history. The Wild Animals Preservation Law which is currently in force in all southern states was first promulgated in 1916 as the Wild Animals Preservation Ordinance, and between then and 1960, when the country attained independence from colonial rule, the number of game reserves rose from 12 to 29. However, very little concrete effort was made to protect game from overhunting. The 1916 Ordinance was practically unenforceable (and was widely ignored); it prescribed ridiculously low fines for offences, allowed hunters generous bag limits, and virtually left the native hunters to their own devices. Game management was not seen as a profitable investment, like forest management, and besides, since wild ungulates facilitated the spread of sleeping sickness in man and cattle, it was thought that they did not deserve to be protected in a densely inhabited, cattle-rearing country.

Attitudes towards wildlife began to change in the mid-1950s when it became known that some African countries were earning substantial revenue from management of wildlife for tourism and meat production (Henshaw & Child, 1972).

Indeed, the then Northern Nigeria Minister for Natural Resources was said to have decided to create a game reserve in that region because he was greatly impressed by what he saw during a visit to one of Sudan's national parks in 1953 (Jia, 1971).

Since Yankari Game Reserve was opened to the public in 1962, there has been an upsurge of interest in conservation among both federal and state governments, culminating in the constitution of the nation's only National Park, the Kainji Lake National Park, in 1975.

This paper attempts to review mainly the post-independence achievements in wildlife conservation; it also draws attention to the problems of wildlife conservation in Nigeria, and offers some suggestions for future progress.

THE COLONIAL PERIOD (1914-60)

Wildlife conservation received very little attention during the British administration of Nigeria owing largely to apathy, undue preoccupation with the 'ancient hunting rights of the natives', and the assumption that wildlife conservation was not only unprofitable but incompatible with the tsetse eradication campaign. In particular, the early part of this period was characterised by ineffective laws, absence of an appropriate administrative

machinery for wildlife protection, and very interesting debates on how best to achieve effective conservation (Happold, 1971).

The 1916 Wild Animals Preservation Ordinance, modelled on the 1900 London Convention for the Protection of African Fauna, proved hopelessly inadequate and impossible to enforce. It was widely criticised (e.g. Haywood, 1932; Collier, 1934; Boyle, 1948) but apart from minor amendments here and there, it remained largely intact until the country attained independence in 1960. Its greatest weaknesses were that: (a) it was aimed almost solely at regulating hunting by civilised standards, whilst virtually ignoring the native hunters, perhaps on the assumption that they had always existed in a state of balance with wildlife, and would continue to do so; (b) it permitted the killing or capture of too many supposedly protected animals for a token fee; and (c) it left the administration of wildlife in the hands of three government departments, namely; the Police, Public Administration and Forestry. Hunting permits were issued by forestry staff and administrative officers, who were also empowered to confiscate animals or trophies that had been acquired illegally. They could not, however, arrest offenders as this was the duty of the police.

These inadequacies, especially the failure to recognise the harm being done by indigenous hunting and farming techniques, resulted in the destruction of wildlife with little or no check. Thus, by the early 1930s many large game species once considered abundant had become so scarce that many well-meaning people began to urge the Colonial Administration to review the Ordinance and adopt stronger measures to protect wildlife. But there were differences of opinion on how best to halt the decline, and these were mainly centred on: (1) whether large national parks and game reserves were desirable and/or practicable; (2) whether a separate game department should be created to manage wildlife; and (3) whether it was fair, in the interest of conservation, to interfere with the rights of native Nigerians to hunt in their traditional hunting grounds.

Haywood (1932), in a survey of the status of wildlife conservation in West Africa, in the early 1930s, recommended the creation of large national parks and sanctuaries; the establishment of a Game Department and an overhauling of the 1916 Ordinance. Collier (1934), while agreeing that the Ordinance was totally ineffective, disagreed with the suggestion that national parks and a game department were feasible. Instead he argued that it was better to create small inviolate sanctuaries (or breeding refuges) and large hunting forests, preferably surrounding the refuges, within which the rights of the natives should not be unduly restricted. According to Collier (1934), a conservation policy that would retain the sympathy of Nigerians must aim to maintain a supply of game for the natives to kill by their own methods. Conservation was only justified in order to maintain game.

Collier's views received support from Spottiswoode (1937), Willan (1938) and Boyle (1948), but were dismissed by Hopley (1936), Shorthose (1936) and Newton (1937) as both heretical and harmful. According to Newton (1937) there was no reason to suppose that it would be impossible to legislate in favour of wildlife as Collier had suggested; the colonial government and Native Authorities had successfully enforced much more obnoxious laws. He argued that propaganda and education, rather than appeasement, were better ways of enlisting the support of Nigerians for conservation.

Regrettably, Haywood's recommendations on national parks, game reserves and a game department were never implemented. Game preservation was apparently not considered as urgent or important as forest protection to justify the expense or administrative problems that these undertakings might create (see Spottiswoode, 1937).

However, wildlife conservation began to receive more attention after the creation of regional forestry services in 1952, with the Northern Region taking the lead. A regional Game Preservation Unit (GPU) was created in 1953 and it was this committee that in 1954 recommended the creation of Yankari Game Reserve, and the appointment of a regional Game Warden (Jia, 1971). Yankari Game Reserve (2240 km²) was constituted in 1955 and opened to the public in 1962.

In Western Nigeria six new game reserves—Old Oyo, Ado-Ekiti, Akure, Olokemeji, Ibadan Crown Lands and Oyo Province—were created between 1952 and 1960, bringing the total to nine, but none received any further attention. Indeed, only Old Oyo (which was merged with Upper Ogun in 1973), Kwale, Orle River and Gilli-Gilli have survived, at least on paper, till today. The 1916 Ordinance was amended in 1959 and remains in force throughout the four states carved out of the old region.

The Eastern Region created a Wildlife Advisory Committee in 1956, but otherwise did very little to protect its wildlife. Instead of appointing a full-time game warden to take charge of wildlife matters, it chose to appoint the regional Chief Conservator of Forests as the Chief Game Warden, and all forest officers became Game Wardens. However, one noteworthy achievement of the Wildlife Advisory Committee was that it successfully arranged an all-Nigeria Conference on Wildlife which was held in Enugu in 1958 (see March, 1958). Arising from the recommendations of this historic conference, a Wildlife Standing Committee was established by the National Council of Natural Resources, to provide, among other things, a forum for exchange of ideas among the three regions and advise the federal government on matters relating to wildlife policy, administration and legislation.

Since 1959 this committee, which is now known as the National Wildlife Conservation Committee, has tackled the problems of wildlife conservation with commendable enthusiasm.

Unfortunately, as Happold (1971) observed, some of its important recommendations regarding the appointment of a federal adviser on wildlife, the creation of a Natural History Museum and the adoption of common wildlife laws throughout the country were never implemented.

THE POST-INDEPENDENCE PERIOD (1960–86)

The post-independence period has been marked by a more vigorous attempt both by federal and regional authorities to promote the ideals of conservation as reflected in a sharp rise in the number of gazetted and proposed game reserves (Fig. 1), the signing of a number of international treaties aimed at protecting wildlife, and the creation of a National Park. Nevertheless the decline in game has persisted, owing largely to a low level of policy implementation and law enforcement.

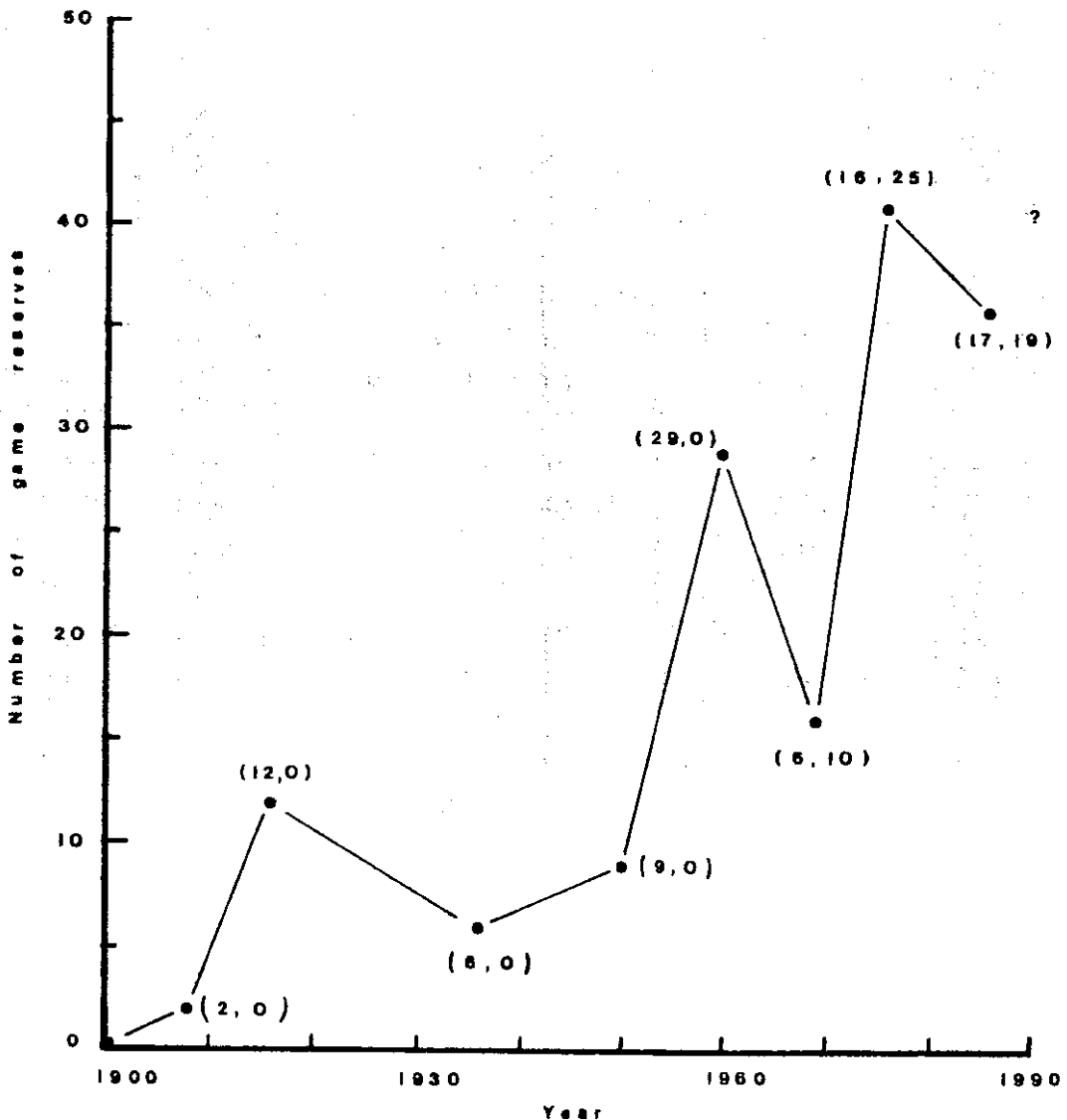


Fig. 1. Growth in the number of game reserves in Nigeria, 1900–86.

Following the successful completion of the Yankari Game Reserve project, the northern Regional GPU embarked on the development of a second game reserve in the Borgu Emirate. In 1970, Borgu Game Reserve (3970 km²) was opened to the public for game viewing, and was followed a year later by the constitution of the adjacent Zugurma Game Reserve. Both reserves were later taken over by the Federal Government and constituted, in 1975, into the Kainji Lake National Park.

It was, however, in the revision and enforcement of wildlife laws that the north clearly set the pace for other parts of the country. The 1916 Ordinance was repealed in 1963 and replaced by an improved Wild Animals Law. This law, unlike the Ordinance—

- (1) provided for the appointment of a game warden and game protection officers;
- (2) made wildlife conservation the responsibility of the Ministry of Animal and Forest Resources;
- (3) conferred powers of arrest and prosecution on game protection officers;
- (4) empowered the Minister to abolish all traditional rights (to hunt, farm or reside) in game reserves;
- (5) prescribed the same hunting licences for both Nigerians and foreigners;
- (6) provided penalties for violations of the law;
- (7) removed from the list of protected animals species not known to occur in Nigeria, provided protection for endangered carnivores and, more importantly, left the bag limit to the discretion of the authority granting a hunting licence; and
- (8) made it an offence to possess or trade in wild animals or trophies without a licence.

This law has since been replaced in some northern states by a new legislation which was adopted in 1975 (Hall, 1976). Under this law:

- (1) many animals which were previously classified as 'specially protected' (2nd Schedule) were transferred to Schedule 1 (Prohibited animals).
- (2) Crocodiles, pythons and monitor lizards were given protection for the first time ever, as were all parrots, birds of prey, primates (except the red patas *Cercopithecus patas* and Anubis baboon *Papio anubis*), and some carnivores.
- (3) Hunters were made to pay in advance for any animals they wished to hunt, and the price of a licence depended on the number and type of animals for which it was granted.

In the western Region a Game Preservation Unit was created in 1963, and a game warden also appointed to run the unit (Adekunle, 1971). In 1973 two more game reserves, Upper Ogun and Opara, were gazetted. Upper Ogun was merged with Old Oyo, and after early attempts to develop the expanded reserve (total area, 2512 km²) for tourism, it has now been virtually allowed to fall into disuse (P. A. Anadu & F. O. Amubode, personal observations).

Nigeria signed the African Convention for the Conservation of Nature and Natural Resources (ACCN) in 1968 (and ratified it in 1972), the Convention on International Trade in Endangered Wild Species of Fauna and Flora (CITES) in 1974, and a regional treaty with the Republics of Cameroon, Chad and Niger on the Joint Regulation of Fauna and Flora on the Lake Chad in 1977. An Endangered Species Decree (Decree No 11 of 1985) has now given the Federal Department of Forestry the much-needed legal backing for dealing with offences under these international conventions.

The highlights are:

- (1) it not only prohibits trade in certain endangered species (Table 1) but also makes it an offence to hunt or capture them;
- (2) it prohibits hunting by certain destructive methods, e.g. fire, automatic weapons, explosives, poisons and night hunting.
- (3) grants the Minister responsible for wildlife power to determine from time to time the number and species of protected animals for which export licence may be granted; and
- (4) stiff penalties are prescribed for violations of the provisions of the decree. Thus, for possessing or trading in animals whose capture or export is absolutely prohibited (Schedule 1) a first offender is liable to a fine of ₦1000 (₦1.00 = US\$1.00 approx.); while habitual offenders risk imprisonment for one year without option of fine.

Since 1972 a Division of Wildlife and Conservation, headed by a professional wildlife biologist, has been responsible for wildlife matters within the Federal Department of Forestry. In particular this division is responsible for wildlife publicity and co-ordination of the conservation programmes of state governments, development of national parks, and enforcement of international conventions. Research and training are handled by the Forestry Research Institute of Nigeria, which has also established (with the help of FAO/UNDP) a Wildlife Management School at New Bussa to train junior and middle-level professional personnel. An undergraduate programme in Wildlife Management has been available at the University of Ibadan since 1968, and more recently at two other Universities, namely Akure and Benin.

TABLE 1
 Endangered Species (Control of International Trade and Traffic) Decree, 1985

Schedule 1

Endangered Species of Animals in Relation to which International Trade is Absolutely Prohibited

MAMMALIA

Insectivora

Otter shrew *Potamogale velox*

Pholidota

Giant pangolin *Manis gigantea*

Long-tailed tree pangolin *Manis tetradactyla*

Tree pangolin *Manis tricuspis*

Primates

Angwantibo *Arctocebus calabarensis*

All colobus monkeys *Colobus* spp, *Procolobus*

All mangabeys *Cercocebus* spp

Chimpanzee *Pan troglodytes*

Drill and mandrill *Mandrillus* spp

Gorilla *Gorilla gorilla*

Pigmy chimpanzee *Pan paniscus*

Rodents

African palm squirrel *Epixerus ebii*

Brush-tailed porcupine *Atherurus africanus*

Carnivora

Lion *Panthera leo*

Leopard *Panthera pardus*

Cheetah *Acinonyx jubatus*

Serval *Felis serval*

Caracal *Felis caracal*

Golden cat *Felis aurata*

Wild cat *Felis libyca*

Spotted hyaena *Crocuta crocuta*

Striped hyaena *Hyaena hyaena*

Aardwolf *Proteles cristatus*

Wild dog *Lycaon pictus*

Cape clawless otter *Aonyx capensis*

Speckle-throated otter *Lutra maculicollis*

Cameroon otter *Aonyx (Paraonyx) congica*

Seals Suborder Pinnepedia

Tubulidentata

Aardvaak *Orycteropus afer*

Proboscidea

Immature elephant *Loxodonta africana*

Sirenia

Manatee *Trichechus senegalensis*

Perissodactyla

Black rhinoceros *Diceros bicornis*

Artiodactyla

Pygmy hippopotamus *Cheoropsis liberiensis*

Giant eland *Taurotragus derbianus*

Dorcas gazelle *Gazella dorcas*

Dama gazelle *Gazella dama*

Addax *Addax nasomaculatus*

Scimitar-horned oryx *Oryx algazel*

Water chevrotain *Hyemoschus aquaticus*

Giraffe *Giraffa camelopardalis*

Giant forest hog *Hylochoerus meinertzhageni*

Yellow-backed duiker *Cephalophus sylvicultor*

Sitatunga *Tragelaphus spekei*

Klipspringer *Oreotragus oreotragus*

Cretacea

Whales Family Balaenopteridae

Whales Family Physeteridae

Whales Family Ziphiidae

Whales Family Delphinidae

Whales Genus *Orcinus*

Dolphins Family Delphinidae

Porpoises Family Platanistidae

AVES

All parrots Family Psittacidae

Eagles, falcons, kites, buzzards, sparrow-hawks

and harriers Family Falconidae and Family

Accipiteridae

REPTILIA

Nile crocodile *Crocodilus niloticus*

Short-nosed crocodile *Osteolemus tetraspis*

Nile monitor lizard *Varanus niloticus*

Short tailed monitor lizard *Varanus*

examthematicus

Royal python *Python regius*

Rock python *Python sebae*

Other significant developments that have taken place in the last four years include:

- (1) the formation of the Nigerian Conservation Foundation (NCF), a private non-profit organisation;
- (2) the setting-up of a panel to draw up a national conservation strategy;
- (3) the creation of a Wildlife Sanctuary inside Okumu Forest Reserve by the government of Bendel State; and
- (4) signing of a Declaration on 'Conservation' by the Federal Military Government.

The NCF, which is affiliated to the World Wildlife Fund (WWF), has since its inception in 1982 proved to be a very effective lobby for wildlife conservation. It works closely with the Federal Department of Forestry (FDF) and is involved in drawing up the national conservation strategy. Apart from raising funds for conservation projects, it has commissioned a report on the current status of almost all the game reserves in the country, contributed funds to a survey of endangered species in Bendel State and actively promoted conservation education.

The preparation of a national conservation strategy, which began in 1984 under the auspices of the FDF, is nearing completion. A draft document has been circulated to all interested parties (government ministries, parastatals, and the organised private sector) in a bid to ensure the widest participation.

The creation of the 69.65 km² Okomu Wildlife Sanctuary follows from the recommendation of Anadu & Oates (1982) to the Bendel State Government.

The 1082 km² Okomu Forest Reserve is the largest and least disturbed remaining example of the typical lowland rainforest ecosystem in south-western Nigeria. It still contains a high diversity of mammals and birds, including the chimpanzee *Pan troglodytes*, forest buffalo *Syncerus cafer nanus*, yellow-backed duiker *Cephalophus sylvicultor*, three species of guenon (*Cercopithecus mona*, *C. nictitans* and *C. erythrogaster*), the rare crowned hawk-eagle *Stephanoaetus coronatus*, blue-headed dove *Turtur brehmeri*, the great blue turaco *Corytheola cristata* and at least six species of hornbill. None of these animals can be said to be common, and for many the sanctuary will probably be their only chance of being saved from extinction.

THE FUTURE OF WILDLIFE CONSERVATION IN NIGERIA

Much is being done to protect and regulate the exploitation of Nigeria's remaining wildlife. Not only have 16 Game Reserves and one National Park been constituted (with plans for as many more, Table 2, Fig. 2), but

TABLE 2
 Nigeria: Game Reserves (GR) and National Parks (1986)
 (Serial Numbers Correspond to Numbers in Fig. 2)

<i>Game Reserve</i>	<i>State</i>	<i>Area (km²)</i>	<i>Date gazetted</i>
A. Established			
1. Sambisa GR	Borno	517	1978
2. Yankari GR	Bauchi	2 240	1955
3. Pai River GR	Plateau	2 214	1972
4. Wase Game Sanctuary	Plateau	1 865	1972
5. Wase Rock GR	Plateau	0.93	1972
6. Pandam Wildlife Park	Plateau	362.7	1972
7. Falgore (Kogin Kano) GR	Kano	920	1972
8. Kwiambana GR	Sokoto	2 613	1971
9. Alawa GR	Niger	296	1971
10. Dagida GR	Niger	294	1971
11. Kainji Lake National Park	Kwara & Niger	5 341	1975
12. Upper Ogun/Old Oyo GR	Oyo	2 512	1973
13. Opara GR	Oyo	2 486	1973
14. Okomu Wildlife Sanctuary	Bendel	69.6	1985
15. Gilli-Gilli GR	Bendel	363	1916
16. Kwale GR	Bendel	3	1916
17. Orle River GR	Bendel	352	1916
18. Lake Chad GR	Borno	705	1978
19. ^a Baturiya (Wetland) GR	Kano	43	1985
B. Proposed			
20. Anambra GR		30. ^a Kashimbila GR	
21. ^a Ankwe River GR		31. Lame/Burra GR	
22. Abuja Fed. Capital National Park		32. Meko GR	
23. Boshi-Okwango-Boshi Extension GR		33. Mutum Biyu Game Sanctuary	
24. Chingurme-Duguma GR		34. Nasarawa GR	
25. Dampar Sanctuary		35. Udo Game Park	
26. Gashaka-Gumti GR		36. Udi/Nsukka GR	
27. Ibi (River Benue) GR		37. Gorgoram GR	
28. Kamaku GR		38. Ifon GR	
29. Kambari GR			

^a Not shown on Fig. 2 because exact location is not known.

management plans have actually been drawn up for some of them (e.g., the Kainji Lake National Park and Kwiambana, Alawa, Dagida and Yankari Game Reserves).

However, the battle to save wildlife, particularly big game, from extinction is not likely to be won in the near future. This is due mainly to socio-economic constraints which include: a shortage of animal protein; the attitude of the ordinary Nigerian to conservation; a desperate shortage of funds for conservation projects; an excessive demand for farmland,

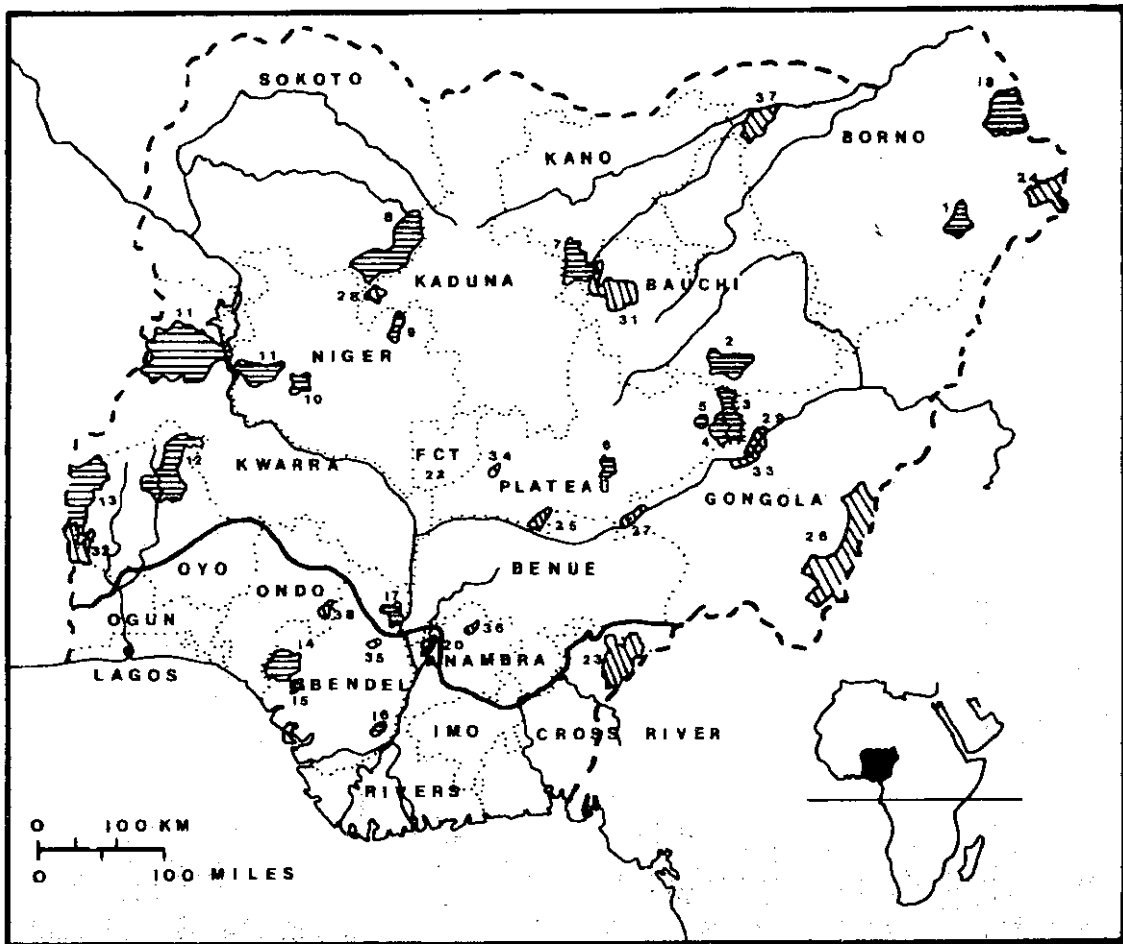


Fig. 2. Nigeria: established game reserves (December 1986). The heavy continuous line marks the northern limit of the high forest. See Table 2 for names corresponding to numbers 1–38. Key: ~ northern limit of high forest; State boundaries; ▨ Gazetted; ▩ Proposed.

fuelwood, and timber; and defects in, and poor enforcement of, existing game laws.

The attitude of most Nigerians to wildlife is clearly influenced by their immediate needs for meat, cash, farmland or fuelwood. In a culture where conservation ethics are traditionally lacking, wildlife is typically viewed as 'bushmeat', a God-given inexhaustible bounty. Animals are hunted for the pot or cash, day and night, but especially by night, and everything from snails to elephants finds a ready market (Table 3). Bushmeat is especially popular in southern Nigeria where 19–20% of the animal protein comes from wild game, compared to a national average of 13% (Charter, 1973; Ajayi, 1979). The popularity of game meat is due not only to the high cost of meat from livestock, but also to meat preferences. Eating habits die hard, and in Nigeria as elsewhere in West Africa game meat is popular both with urban and rural dwellers (Martin, 1983).

A ready market and the absurd prices that people are sometimes willing to

TABLE 3

Some Bushmeat Species and Price of the Undressed Carcass Recorded during Market and Roadside Survey in Bendel State, June-August 1982

Common name	Species	No. seen	Av. cost/kg body wt (₦)
Mona monkey	<i>Cercopithecus mona</i>	14	3.08
White-throated monkey	<i>C. erythrogaster</i>	5	3.41
Tree pangolin	<i>Manis tricuspis</i>	8	7.55
Giant rat	<i>Cricetomys gambianus</i>	238	0.86
Brush-tailed porcupine	<i>Atherurus africanus</i>	60	10.00
Grasscutter	<i>Thryonomys swinderianus</i>	374	5.64
African civet	<i>Viverra civetta</i>	1	0.38
Tree hyrax	<i>Dendrohyrax dorsalis</i>	5	1.00
Bushpig	<i>Potamochoerus porcus</i>	30	0.80
Bushbuck	<i>Tragelaphus scriptus</i>	46	2.90
Maxwell's duiker	<i>Cephalophus maxwelli</i>	121	4.42
Red-flanked duiker	<i>C. rufilatus</i>	2	1.06

pay for bushmeat (Table 3), naturally encourages hunting on a commercial scale. Sometimes hunters would set up temporary camps, for days or weeks, inside forest reserves, where game meat is smoked before it is transported to middlemen.

Control of poaching is made difficult by shortage of funds and manpower (Ayeni, 1985). Many states either have only a few ill-equipped protection staff or none at all. Infrastructural facilities, e.g. tracks, weapons, vehicles, patrol posts communication equipment, etc., are either lacking or in a state of disrepair. And except in the Kainji Lake National Park, police authorities have refused permission for reserve staff to bear firearms.

Overhunting is further facilitated by loopholes in existing game laws. Owing to the absence of adequate survey records, the classification of an animal as totally or partially protected is somewhat arbitrary. Thus in the southern parts of the country, where the outmoded 1916 Ordinance is still in force, one does not need a licence to hunt monkeys (except the colobus), prosimians, the bushpig, carnivores, hyraxes, birds of prey (or indeed most native birds), or any reptile; and game protection staff have no authority to arrest or prosecute offenders. This is a matter for the police, who themselves are fully stretched trying to maintain law and order.

Habitat destruction through shifting cultivation, logging, and collection of fuelwood also poses a serious threat to wildlife. Nigeria's estimated population of 87-100 million is expanding at the phenomenal rate of 2.5-3.0%. This has led to a serious land hunger in some parts of the country, notably in the former eastern Nigeria where the population is one of the

TABLE 4

Endangered Large Mammals of Nigeria, including Some Species that are Probably Already Extinct (*)

Common name	Species
Chimpanzee	<i>Pan troglodytes</i>
Gorilla	<i>Gorilla gorilla</i>
Eastern black-and-white colobus	<i>Colobus polykomos vellerosus</i>
Abyssinian black-and-white colobus	<i>Colobus guereza</i>
Red colobus	<i>Colobus badius preussi*</i>
Olive colobus	<i>Procolobus verus</i>
Drill	<i>Papio (Mandrillus) leucophaeus</i>
Sclater's red-eared guenon	<i>Cercopithecus erythrotis sclateri</i>
Cameroon red-eared guenon	<i>C. erythrotis camerunensis</i>
Crowned monkey	<i>C. pogonias*</i>
Leopard	<i>Panthera pardus</i>
Cheetah	<i>Acinonyx jubatus</i>
Hunting dog	<i>Lycaon pictus</i>
Forest elephant	<i>Loxodonta africana</i>
Giraffe	<i>Giraffa camelopardalis</i>
Forest buffalo	<i>Syncerus caffer nanus</i>
Black duiker	<i>Cephalophus niger</i>
Topi	<i>Damaliscus korrigum*</i>
Klipspringer	<i>Oreotragus oreotragus</i>

highest in Africa (Barbour *et al.*, 1982). With the current emphasis on increased food production, it is feared that some of the proposed game reserves could be de-restricted under intense lobbying by local communities and a new class of wealthy farmers.

Given the present economic recession it is not likely that wildlife will rank high on the priority list of any government in the country. There is therefore a real danger that the achievements of the past two decades will be jeopardised in the coming years. Already the black rhinoceros *Diceros bicornis*, Derby eland *Taurotragus derbianus*, pigmy hippopotamus *Choeropsis liberiensis*, and the ostrich *Struthio camelus* have become extinct in Nigeria. The highly vulnerable species in Table 4 may soon join them.

The national policy on wildlife states that wildlife shall be conserved in order to: (1) promote tourism; (2) protect a national heritage; (3) ensure a sustained crop of game meat; and (4) preserve wildlife for posterity. These worthwhile objectives deserve to be pursued by making funds available for conservation projects. Efforts should be made to tackle the menace of shifting cultivation by adopting intensive land use strategies. Formal conservation education should be promoted at the primary and secondary school levels, game laws should be overhauled in those states still operating the 1916 Wild Animals Law and permission to bear firearms for self defence

granted to game protection staff. The idea of using local vigilantes to police reserves should be explored (particularly if local government councils are also allowed to keep some of the revenue derived from fines and gun licences).

Perhaps too, the time has come to re-assess the nation's conservation strategy. For instance, the land use decree should be amended to facilitate the creation of more national parks in areas that are considered to be of national significance, while some thought ought to be given to the upgrading of the federal wildlife division into a fully-fledged department, or creating an autonomous Natural Resources Board to run these parks, as had been suggested by Happold (1971) and Ayeni (1985).

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REFERENCES

- Adekunle, A. (1971). Progress in wildlife conservation in Western State of Nigeria. In *Wildlife conservation in West Africa*, ed. by D. C. D. Happold, IUCN Publs New Series, No. 22, pp. 30-4.
- Ajayi, S. S. (1979). The utilization of tropical forest wildlife: State of knowledge and research priorities. *8th World Forestry Congress, Dakarta, Indonesia*, FAO MISC/79/27, ROMÉ, FAO.
- Anadu, P. A. & Oates, J. F. (1982). *The status of wildlife in Bendal State, Nigeria with recommendations for its conservation*. Mimeo report to the Nigerian government, the New York Zoological Society and the World Wildlife Fund (US).
- Ayeni, J. S. O. (1985). Strategies for quick and effective conservation and recovery of the diminishing wildlife resources of Nigeria. *Niger. Fld.*, **50**, 37-40.
- Barbour, K. M., Ogantoyinbo, J. S. Onyemelukwe, J. O. C. & Nwafor, J. C. (1982). *Nigeria in maps*. London, Hodder & Stoughton.
- Boyle, C. L. (1948). Wildlife preservation in Nigeria. *J. Soc. Pres. Fauna Empire (NS)*, **56**, 31-3.
- Charter, J. R. (1973). The economic value of wildlife in Nigeria. *Federal Department of Forest Research, Research Paper No. 19*.
- Collier, F. S. (1934). Notes on the preservation of the fauna of Nigera. *Niger Fld*, **4**, 3-13, 51-62, 106-13.

- Hall, P. (1976). Priorities for wildlife conservation in North-Eastern Nigeria. *Niger. Fld*, **41**, 99–115.
- Happold, D. C. D. (1971). A history of wildlife conservation in Nigeria, and thoughts for the future. In *Wildlife conservation in West Africa*, ed. by D. C. D. Happold, IUCN Publs New Series, No. 22, 7–14.
- Haywood, A. H. (1932). Nigeria—Preservation of wildlife. *J. Soc. Pres. Fauna Empire (NS)*, **17**, 27–48.
- Henshaw, J. & Child, G. S. (1972). New attitudes in Nigeria. *Oryx*, **11**, 275–83.
- Hobley, C. W. (1936). The wildlife problem in Nigeria. (Letter to the Editor) *Niger Fld*, **5**(4), 191–2.
- Jia, J. (1971). The Yankari Game Reserve: 1955–1970. In *Wildlife conservation in West Africa*, ed. by D. C. D. Happold, IUCN Publs New Series, No. 22, 27–30.
- March, E. W. (1958). *Annual Report of the Forestry Division (Eastern Nigeria), 1957/58*. Enugu, Ministry of Agriculture.
- Martin, G. H. G. (1983). Bushmeat in Nigeria as a natural resource with environmental implications. *Environ. Conserv.*, **10**, 125–32.
- Newton, T. C. (1937). A further criticism. *Niger. Fld*, **6**, 19–22.
- Spottiswoode, H. (1937). Game preservation: Ambition or achievement? *Niger. Fld*, **6**, 114–15.
- Shorthose, W. T. (1936). A criticism. *Niger. Fld*, **5**, 60–8.
- Willan, R. G. M. (1938). Game preservation in Nigeria: A reply to Mr Newton. *Niger. Fld*, **7**, 28–9.