



The material that follows has been provided by the [Overseas Development Institute](#)

WHAT'S SPECIAL ABOUT WILDLIFE MANAGEMENT IN FORESTS? CONCEPTS AND MODELS OF RIGHTS-BASED MANAGEMENT, WITH RECENT EVIDENCE FROM WEST-CENTRAL AFRICA

Amar Inamdar, David Brown and Stephen Cobb

Wildlife consumption is an integral part of the livelihood and trade patterns of many peoples in the developing world, and highly valued by them. Yet to date the dominant models of wildlife management in areas of high – and allegedly unsustainable – consumptive use have favoured the exclusion of the users from the resource and the denial of its local values. This gives little incentive to rural dwellers to manage wildlife sustainably. Innovative strategies are required to enhance the rights of the resource users and to increase their entitlements to appropriate the benefits of wildlife for themselves. There has been little success in devising these outside areas with high tourist potential, but experience in other natural resource sectors may provide useful pointers.

Policy conclusions

- Strategies of wildlife management differ according to the nature of the threat to the resource, the two main threats being habitat conversion and unsustainable off-take.
- Where the threat is from unsustainable off-take, there are strong arguments not to apply blanket preservationist controls.
- The solutions to the problem of unsustainable offtake have more to do with management than public education or awareness-raising.
- Devising policies for the sustainable management of wildlife is a complex and challenging task with many unknowns; where the considerable additional transaction costs of managing wildlife cannot be offset against new benefits (from sport hunting and tourism, for example), alternative management strategies have to be adopted which explicitly promote equity and sustainability.
- Conventional solutions to the problem of excessive use, such as privatisation of tenure and the reinstatement of traditional control systems are very uncertain routes to poverty alleviation.
- Rights-based management systems, enabling people to negotiate access and

assert their entitlement to resources, are an important tool to broker better development opportunities. Examples of such regulatory systems from other natural resource sectors, such as inshore fisheries, may provide useful models to regulate the offtake and enable the poor to define their rights to wildlife resources in communal management regimes.

Introduction

This paper focuses on consumptive use of wildlife in the informal sector, particularly the consumption and trade in bushmeat in Equatorial Africa, the levels of which are widely believed to be unsustainable. It does not directly address the issues of consumptive and non-consumptive uses in areas of high tourist potential (such as is often the case in southern Africa). Several interesting models of the 'safari' type exist for community involvement in wildlife management in contexts such as these – 'Campfire' being the best known example – and these have been well publicised. Outside these high tourist potential areas, wildlife management is still highly problematic, though it is in such areas that the biodiversity concerns are often greatest (Brown, 1998).

The value of the resource to human livelihoods

The use of wildlife may have important social development aspects, for it is often most highly valued by the poorest sections of the population. Wildlife products are often major items of consumption or display in many human cultures and have a high medicinal and spiritual values (Scoones et al., 1992). Adopting the usual definition of wildlife to include all types of undomesticated terrestrial animals, including vertebrates and invertebrates, these products may include a wide variety of foodstuffs (bushmeat, insect grubs, crustacea and eggs) and animal parts for clothing and display. Little-considered animals such as snails may provide important safety nets for people in years of environmental stress. The wildlife trade often has important differential gender dimensions, with the hunters being men, and women dominating the commerce. The most extensive research on the values of wildlife for local consumptive purposes has concerned the bushmeat trade. Bushmeat offers a number of benefits to forest-dwelling populations and, particularly in areas with poor infrastructure and communications, has few rivals as a store of tradeable value. Highly transportable, offering a high value/weight ratio, easily preserved at low cost and with good storage qualities when smoked, bushmeat is often both the primary source of animal protein and the main export commodity for the inhabitants of the humid forest regions of the tropics. Bushmeat production is a major component of the economies of much of Equatorial Africa, and a primary item of the diet (see Box 1 and Table 1).

Box 1 The bushmeat trade in Equatorial Africa

Hunting and the bushmeat trade occupy a central place in the economies of Equatorial Africa, and the volumes traded are substantial. An inventory of the four main markets in the Cameroon capital, Yaoundé, indicates sales of 70–90 tonnes monthly, at an average of 2,300 kg per day (Baillon, 1996, quoted by Klein and van der Wal, 1998:

111). The annual bushmeat trade in Gabon has been valued at \$22 million (informal market) and \$3 million (formal market), with four tonnes entering Libreville monthly. 26,000 animals are said to be sold in Pointe Noire in the Republic of Congo each month, which given wastage rates, may imply half a million animals killed for this market each year (Wilson and Wilson, quoted in Colchester, 1994: 48–9).

Table 1 Extent of bushmeat consumption in Equatorial Africa

	Forest area	Population			Bushmeat eaten	
Country	Km ²	Forest	Urban	Kg/year	kg/km ² year	k
Cameroon	155,330	1,424,000	2,214,620	78,077,172	503	2
CAR	52,236	219,500	539,775	12,976,507	248	1
Democratic Congo	1,190,737	22,127,000	3,782,369	1,067,873,491	897	4
Equatorial Guinea	17,004	183,000	227,500	9,762,838	574	2
Gabon	227,500	181,700	581,440	11,380,598	50	1
Rep. Congo	213,400	219,500	1,245,528	16,325,305	77	1
TOTAL	1,856,207	24,354,700	8,591,232	1,196,395,911	645	3

Threats to the conservation of wildlife

The threats to wildlife conservation are likely to be of two main types, each requiring a different management strategy:

a) Habitat conversion

Where the main threat is from conversion of a habitat to other uses such as agriculture, then the conservation strategy is likely to require an accurate valuation of the wildlife resource, and attempts to increase the cash returns from management so as to justify its retention against the alternatives.

b) Unsustainable off-take

By contrast, where the threat is from excessive use, then this logically requires an attempt to regulate the off-take in the interests of sustainability. This is the more common situation in many of the forested areas of Equatorial Africa, and the main interest of this paper. Paradoxically, the dominant approach to environmental management in areas with high off-take has not been to acknowledge the commodity and enhance its value, but to stigmatize the industry and apply a complete ban on local consumption and commercial trade. Just how profligate is the bushmeat industry is a matter for debate; but in any event, seeking to control a valued commodity in this way does not readily commend itself as a management strategy.

Wildlife in crisis – How big is the threat?

Is wildlife in crisis, as the media would have us believe, not just as regards the charismatics but also the species which dominate the bushmeat trade? Recent studies of the processes of international policy formulation warn of the dangers of taking too literally many doomsday predictions about the future of the environment in the developing world (Roe, 1991; Fairhead and Leach, 1998). Whether or not the ‘narrative of Malthusian destruction’ applies in any particular case, the crisis approach to management is all too often used to legitimise a massive transfer of authority away from those in immediate contact with the resource, who must ultimately be held responsible for its fate, towards national urban élites and the international community. Given the often problematic levels of ownership of wildlife, the tendency to further diminish local authority is a matter for particular concern.

Estimating both existing hunting yields and maximum sustainable harvest rates presents considerable difficulties in the conditions prevailing in tropical forests. The evidence from Equatorial Africa is overwhelmingly of unsustainable off-take, though the picture presented is often so extreme as to be difficult to accept at face value. In Cameroon, for example, rates for the commoner duiker species (such as the Blue Duiker, *Cephalophus monticola*) have been reported as up to about 25 times greater than sustainable levels, yet the off-take continues more or less unabated, implying gross inaccuracies in estimates of off-take, or of regenerative capacity, or both.

Nevertheless, the facts are of massive and completely unmanaged harvesting, in conditions of ever-increasing public access (often linked to logging and road building projects), improvements in destructive technologies, wide availability of arms, ammunition and the militarisation of many states, and growing penetration by high spending and strategically-positioned élites. While doomsday thinking must be treated sceptically, sustainability does appear threatened under present conditions, the continuing ability of the rural poor to benefit from this resource must be in doubt.

The distinctive features of the resource

The problems of managing wildlife are in many ways akin to the problems of any form of management of common pool resources, the differences being primarily of degree rather than of kind (Box 2). In combination, they considerably lower the incentives for sustainable management.

Box 2 The distinctive features of wildlife as a common pool resource

- *Low ownership*
Most notable are low levels of local ownership. In most countries, wildlife is either without any owner or is state property and alienated from the local communities.
- *Mobility of the resource*
Low levels of ownership are related, inter alia, to the mobility of the resource. Mobility distinguishes animals fundamentally from most plants and has important implications for their management.
- *Non-recognition of user rights*
Recognising the rights of traditional users in relation to mobile resources like wildlife poses particular intellectual and managerial challenges. All too often, the discourse of biodiversity conservation equates low densities of sedentary human populations and 'true' owners with an absence of legitimate user rights, a confusion which can easily serve to justify transfers of rights away from the poor and marginal.
- *Criminalisation of use*
Along with low levels of ownership goes the fact that activities associated with its use tend to be criminalised; wildlife exploitation is often subject to numerous negative sanctions.
- *Difficulty of monitoring the resource*
Despite many years of effort, the quest for techniques to census forest animals accurately has so far eluded ecologists, even for large animals like elephants and the great apes.
- *Low barriers to entry in the exploitation of the resource*
Factors such as low levels of ownership and the low cost and wide availability of hunting technology lower the barriers to entry into hunting, and its frequent blanket criminalisation only discourages regulation. In many societies it is the preserve of young adult males, who are best able to accommodate the variable returns and other uncertainties of hunting.

All of these features imbue wildlife with the characteristics of common pool resources and may encourage free-rider behaviour. Those who exploit the resource have little ability or incentive to manage it sustainably.

Options for management

The distinctive features of wildlife and the complex political contexts within which its use occurs pose some significant management dilemmas. The problem appears to be less one of environmental education than of achieving effective management (Box 3).

What are the options for donor interventions to increase the livelihood security of peoples dependent on wildlife as a consumptive resource? Given the public goods aspects of wildlife in Equatorial Africa, land and resource privatisation (promoted as solutions to wildlife management elsewhere) may be insufficient in themselves. Devolving ownership of wildlife without effective institutional incentives to promote equity and sustainability could well marginalise large numbers of wildlife users. The common access and usufruct rights which they currently enjoy (even if only by

default) may be threatened, rather than supported, by changes in the land tenure regime.

Equally, there is no guarantee that solutions based on reinstating traditional control systems will necessarily provide any easy institutional base for effective management of the resource. Global integration, monetisation of economies, growing land and labour transactions and social complexity, combined with increasing pressure on natural resources, all challenge images of communities as cohesive entities. This casts doubt on the notion that leaders and followers share a basic commonality of purpose.

If wildlife conservation is to contribute to people's livelihoods, new forms of ownership must be found which do not rely on over-ambitious land reforms or the restitution of traditional controls. The development of rights-based management that supports people's entitlements may well be a more promising avenue.

Box 3 Problematic areas in the management of wildlife

- *Problems of institutional scale* Given both the nature of the resource and the threats to its survival, wildlife management regimes (particularly for the larger species) need to be imposed over large geographical areas. Wildlife tends to be most abundant in regions which are weakly controlled by the institutions of the state. In such areas, traditional institutions usually operate best on a small scale; high-level institutions tend to be notably weak and riven with conflicts. Scaling up local institutional arrangements for wildlife management is likely to be problematic.
- *Permeation of the industry by external elites* A complicating factor is that in many societies, hunting is not restricted only to local communities, but draws in professional bushmeat hunters often sponsored by urban entrepreneurs with access to modern weapons. Perversely, the attempt to increase the regulation of the industry may merely encourage such operators, who can easily subvert the intended controls.
- *Donor initiatives and the reluctance to relinquish control* Government and donor-supported wildlife management strategies have rarely proven willing to relinquish control over wildlife to rural dwellers, or let them decide whether or not to retain the resource. For many governments, this would set a dangerous precedent, given that wildlife is merely one part of a package of state-appropriated resources, the other components of which include high-value land, timber and minerals.
- *Problems with local participation* Even where outside agencies are willing in principle to pursue 'participatory strategies', this may prove difficult to achieve. Villagers are usually reluctant to admit to involvement in illegal practices, and unless governments are prepared to concede such rights in public, only the most peripheral players may be ready to participate openly in wildlife management strategies.
- *Decentralisation of the bushmeat trade* In many parts of Africa, the bushmeat trade is highly decentralised (this increases its attractiveness to the poor), and the primary markets are dispersed throughout the forest areas. The secondary markets may offer more potential for regulation, as these are usually in major

urban and industrial centres.

- *Compensation measures* There are few agencies willing to compensate people for illegal practices foregone, and attempts to provide alternative income sources have not been proven very effective (Brown, 1998).
- *Discriminatory hunting strategies* Strategies of control which attempt to differentiate acceptable from unacceptable practices – for example, permitting the hunting of rodents and vermin (which are rarely threatened, and often thrive better on-farm than in the forest) while banning the hunting of endangered species, or permitting the taking of mature animals while protecting the young – has considerable appeal to the livelihoods lobby but is regarded with scepticism by preservationists. The arguments against the approach are quite strong. Under present management regimes hunters will be tempted to take even protected animals when they come within range, and some of the preferred hunting technologies (snares and traps) do not discriminate at all.

The ways forward

Wildlife has long been marginalised from the development debate, and to introduce the complex sanctions now needed to control its utilisation, trade and management will not be easy. Nevertheless, improvements can be made, without necessarily surrendering the twin goals of equity and conservation. The starting point must be recognition that local wildlife consumption and trade is something to be managed, not devalued and criminalised.

Wildlife resources on common land (such as is de facto the case in many parts of Equatorial Africa) present particular regulatory difficulties because of their distinctive characteristics (mobility, coverage of large areas, difficulty of monitoring) enumerated above. However, regulatory systems from other natural resource sectors, such as inshore fisheries, may provide useful models to enable the poor to define their rights to wildlife resources in communal management regimes. Individual Transferable Quotas (ITQs) are one such innovation which may have potential in the wildlife sector (see Box 4).

Box 4 Individual Transferable Quotas – An innovative model from the fisheries sector

Rights-based management systems, which enable people to negotiate access and assert their entitlement to resources on an on-going basis, are an important tool to broker better development opportunities. Individual Transferable Quotas (ITQs) are one class within the rights-based (or ‘entitlements’) approach. They were first introduced in New Zealand in 1986 but are now being used in Iceland, Australia, the USA and Canada. An ITQ is a percentage of the total allowable catch which is set annually on the basis of scientific advice. ITQs are allocated to individuals generally on the basis of catch history. They appear to work best if they are able to evolve into ‘real’ property rights with minimum interference from government. Their value increases over time, they can be freely traded and people can choose to form

cooperatives or sell their shares and leave the fishing industry. In the best scenarios, the secure income offered by ITQs can be used as a basis on which to raise capital and encourage investment in the sustainable future of the fishery. Monitoring of harvests can be simplified dramatically as ITQs create an incentive for owners to catch free riders operating in the market (de Alessi, 1998).

ITQs have been criticised because they enable large commercial companies to buy up all of the rights to fish stocks, often resulting in marginalisation of small independent fisherfolk. Against this should be weighed the fact that people are compensated for their entitlement to their proportion of the catch – without the ITQ, the commercial operator could have simply pushed them aside.

There are many similarities between the fisheries and wildlife industries. The estimate of sustainable yield, for example, is based on catch data (the number of animals taken out of the environment) rather than count data (how many animals remain in the environment). The approach commends itself where there is uncertainty as to the level of the stock, for as long as it is subject to regular review the yield can be adjusted in line with productivity. ITQs have proven useful in managing artisanal fisheries though they have not yet been tested as a mechanism to regulate wildlife. There are two particular challenges in the latter reference. The first is ensuring that local and national governments respect the validity of the quota and do not interfere in how it is traded. The second is establishing the system that allows people to monitor and regulate offtake. This latter function will largely be determined by the size and extent of the local wildlife market.

There are other more modest measures, which can be taken to improve the management of wildlife:

Accepting trade-offs

It is interesting to contrast the approach taken by many governments and their international partners in relation to the management of resources, which offer immediate value to themselves against resources such as wildlife, where the benefits are primarily to local communities. In the management of timber, for example, trade-offs are routinely made between the interests of the industry and the long-term desire to conserve the resource. This contrasts starkly with the reluctance of many agencies to negotiate with local populations over wildlife, preferring to stick rigidly to impractical exclusion strategies.

Negotiating with the users

Wild animals are living resources subject to fluctuations from season to season and year to year, and thus need to be managed in a flexible way (Murphree, 1996). Establishing the rights of both users and those affected by the resource to negotiate over its condition is thus likely to be central to any management strategy. There are instances in other sectors where accommodations have been made and the results are usually encouraging. Mali offers one (Box 5).

Box 5 Negotiated access to seasonal resources – the inland Niger Delta

in Mali.

For centuries the pastoral peoples (mainly Fulani) who use the grazing resources of the Niger floodplain in the dry season, have done so according to a mutually negotiated pattern of rights of access. Latterly, as part of a national policy of decentralisation, the role of traditional authority has been interwoven into that of the regional range management agency which convenes an annual conference to determine the resource use calendar. During this conference the various resource user groups (pastoralists, cultivators and fisherfolk) decide and define their temporal access rights over the floodplains of the inland Niger Delta. Although this event is not without tension, it demonstrates one way in which traditional and contemporary decision-making systems can be blended together to regulate access to natural resources.

Influencing the wider environment

Part of the pressure on the resource derives from the increased access that is provided to bushmeat hunters by the activities of the timber industry. While ultimately such activities need to be accommodated within a wider land and resource management system, there are short-term steps which can be taken to limit both the demand for bushmeat from itinerant timber workers, with no long-term interest in the sustainability of the local stock, and the potential which such industries offer to abuse the trade. These include contracts requiring the companies to provide alternative sources of protein (frozen sea fish and poultry), at affordable prices, to their workers, and controls on the use timber vehicles.

Conclusion

Significant progress has been made in recent years in advancing the case for people's involvement in wildlife management, though the success stories have been much greater in areas with tourist potential than where the resource is primarily of interest for local consumption. Workable models of sustainable management in the latter instance are few and far between. Populist models which link community participation, land tenure reform and the reinstatement of traditional control systems simplistically with poverty alleviation and resource conservation, are unlikely to suffice in an increasingly complex world. Even where such mechanisms are politically feasible, the transaction costs may well outweigh the benefits that accrue. We must look to other sectors for viable models, and search for innovative forms of ownership more compatible with the interests of the poor and with a greater chance of political acceptability. Rights-based management, grounded in equitable negotiation by user groups, offers a promising route for wildlife development.

References

- Alessi, M. de (1998) 'Fishing for solutions'. *IEA Studies on the Environment* No.11. London: Institute of Economic Affairs.
- Brown, D. (1998) 'Participatory biodiversity conservation: Rethinking the strategy in the low tourist potential areas of Tropical Africa'. *ODI Natural Resource Perspectives* No.33. London: Overseas Development Institute.
- Inamdar, A. and Cobb, S. (1998) 'Wildlife as wealth: Can wildlife contribute to poverty elimination?' *Wildlife Issues Paper, Linking Policy and Practice in*

- Biodiversity*. London: DFID.
- Colchester, M. (1994) *Slave and enclave: The political economy of Equatorial Africa*. Penang, Malaysia: World Rainforest Movement.
- Fairhead, J. and Leach, M. (1998) *Reframing deforestation: Global analyses and local realities*. Studies in West Africa. London and New York: Routledge.
- Klein, M. and van der Wal, M. (1998) 'About tropical hardwood, hunters and gorillas: Conservation of forest fauna in south Cameroon'. In *The Congo Basin*. The Netherlands: IUCN.
- Murphree, M. (1996) *Approaches to community participation*. ODA Wildlife Policy Consultation.
- Roe, E. (1991) 'Development narratives, or making the best of blueprint development'. *World Development* 19. Vol.4 pp.287–300.
- Scoones, I., Melnyk, M. and Pretty, J. (1992) *Hidden harvest: Wild foods and agricultural systems*. London: IIED.
- Wilkie, D. S., and Carpenter, J. F. (1999) 'Bushmeat hunting in the Congo Basin: An assessment of impacts and options for mitigation'. *Biodiversity and Conservation* (In Press).

Stephen Cobb and **Amar Inamdar** are, respectively, Director and Head of the Institutions Unit at the Environment and Development Group, 11 King Edward Street, Oxford OX1 4HT, UK.

Email: amar@edg.org.uk

Tel: 44 (0) 1865 263400

Fax: 44 (0) 1865 263 401

David Brown is a Research Fellow of the Forest Policy and Environment Group at the ODI, Portland House Stag Place, London SW1E 5DP, UK.

Email: d.brown@odi.org.uk

Tel: 44 (0) 171 393 1615

Fax: 44 (0) 171 393 1699

The authors would like to thank Caroline Ashley, Pippa Trench and David Wilkie for helpful comments on an earlier draft of this paper.

Natural Resource Perspectives present accessible information on important development issues. Readers are encouraged to quote from them for their own purposes or duplicate them for colleagues but, as copyright holder, ODI requests due acknowledgement. The Editor welcomes readers' comments on this series.

Administrative Editor: [Melanie Woodland](#)

Series Editor: [John Farrington](#)



ISSN: 1356-9228

© Copyright: Overseas
Development Institute 1999

DFID Department for
International Development

This series is published with financial support from the Department for International Development (formerly the Overseas Development Administration). Opinions expressed do not necessarily reflect the views of either ODI or DFID.

**Overseas Development Institute
Portland House
Stag Place
London SW1E 5DP, UK**

Telephone +44 (0)171 393 1600

Fax +44 (0)171 393 1699

Email: nrp@odi.org.uk