

Wildlife Conservation in Nigeria and the Role of Zoological Gardens

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Abstract

Zoological gardens provide an opportunity to open up a whole new world of curiosity and interest, and sensitize visitors regarding the value and the need for conservation of wildlife. From past functions in recreation as menageries and in education as living museums, they are coming to discharge these functions, plus other meaningful ones in research and conservation, as internationally oriented conservation centers. Zoos are visited by large number of people and they are potential sites for educating people about wildlife and biodiversity conservation. Zoo education can make a serious contribution to a sustainable future by providing lifestyle information and examples for visitors to make informed choices. Education is the primary function in conservation, but zoos have begun to make significant contributions as genetic refuges and reservoirs, especially for large vertebrate species threatened with extinction. Funding, research, conservation efforts, and captive breeding programmes are the concrete tools that allow zoos to lay claim to their contributions, but it is their more subtle cues that leave a lasting impression with zoo visitors. The exhibits, layout, signage and presentations reflect prevailing attitudes about nature, wildlife, exotic species, and shape ideas about how animals live their lives and what they are like in the wild. Zoo programmes can explain how easily the subtle balances in natural habitats and ecosystems are disturbed by human interference and the connections between human consumption and lifestyle and the survival of species and biological systems. Cooperation between developing and developed countries of the world in the development of technical capacities among zoo counterparts, government agencies, and protected areas would further the conservation of biodiversity. Similar involvement by other biological institutions and by biological professional associations can make important contributions to policies of nations and actions of people that determine the prospects for survival of much of the biota.

Introduction

Zoological Gardens, sometimes called Zoological Parks are institutions in which wild animals are kept in captivity. Their primary objective is to serve as a means of instruction in natural history, providing material for museums and investigation in comparative anatomy and pathology. They also gratify the pleasure most persons take in viewing at close range the curious and beautiful living products of nature. This adds a commercial value for their functions as they serve as pleasure resorts, or as show grounds for the display of animals that have been imported or bred for sale.

The term “Conservation” is regarded in this paper as the management of human use of the biosphere so that it may yield the greatest sustainable benefit to meet the needs and aspirations of future generations. Conservation is not restricted to preservation and protection of natural resources but also includes their restoration, enhancement and sustainable use. Conservation of any single resource frequently needs comprehensive information on other components of the environment and their inter-relationships, in addition to empirical information on its abundance and spread. Inventories not only provide information on numbers and distribution but also help in determining the need for refuges like Game Reserves, National Parks, Zoological Gardens, and Sanctuaries where depleted populations are capable of being restored (Gimbarzevsky, 1973).

Wildlife refers to animals which by nature occur in the wild either in protected areas or outside protected areas. Their conservation involves the continuous protection, management and development in accordance with ecological principles that ensure their optimum economic and social enjoyment. So, wildlife which occurs in both terrestrial and aquatic ecosystems that have not been modified by human activities, makes up an essential part of nature and contributes to the beauty and wonder of life.

The wildlife resources of tropical African’s rural landscape consists of terrestrial mammals, birds, reptiles, amphibians, invertebrates, plants and many aquatic vertebrates and invertebrates. These resources play conspicuous roles in the rural as well as national economics of tropical Africa. The most important value of wild animals is their use as a source of meat for human consumption (Olayide, 1975). Communities living near a forest in Nigeria obtain about 84% of their animal protein from bush meat (Asibey and Child, 1990). Apart from this, wildlife acts as a reservoir of genetic diversity. It provides drugs and animals for the advancement of medicinal research and knowledge. It also serves as a source of raw materials for industries as well as providing incomes for rural communities and foreign exchange for the nation. In addition, it is also a major base for recreation and the tourist industry (Amusa, 2004).

Conservation efforts have stemmed from concern over severe depletion and in some cases near or complete extinction of some large game species. Wildlife conservation is inseparably connected with planned management of lands and waters and of forest products, crops and valuables that are taken from the wild each year. Despite the importance of wildlife conservation in tropical Africa, Nigeria still has a dismal record as a result of poor funding, inadequate infrastructure and legislative logistics and administrative inadequacies. This has conferred important roles on zoological gardens in the revitalization of wildlife populations either in the wild or under captive conditions (Akinpelu, 2005). Hence, the mission of zoological gardens is to connect people, animals and natural world. To accomplish this, the garden provides education, recreation and conservation programs with a view to encourage stewardship for animals and nature, foster a greater appreciation for the earths’ diversity and at the same time provide programs for developing environmentally-knowledgeable citizens.

Conservation Efforts in Nigeria

In Nigeria, three categories of protected areas exist. These include: Strict Nature Reserve (6); Game Reserves and National Parks (8); all of which were formally referred to as Forest Reserves. Currently, some 3.5 percent of Nigeria is under one or two of the above-mentioned Reserves for nature conservation. The Strict Nature Reserves, relatively small and intended to conserve various examples of primary vegetation, is within the forest reserve under the control of the Forestry Research Institute of Nigeria (FRIN), but is not protected by specific legislation. The Game Reserves are controlled by the states and are expected to be areas where hunting is strictly regulated, the habitat protected and wildlife conserved and managed.

At the national level, wildlife conservation and protected areas are the responsibility of the Federal Department of Forestry and the Ministry of Agriculture, Water Resources and Rural Development. The Wildlife and Conservation Division of the Federal Department of Forestry is responsible for the establishment and development of national schemes for the enforcement of international wildlife conventions.

However, because of financial constraints that have affected Nigeria for the past two decades, government activities in wildlife conservation have declined tremendously in the areas of funding and provision of enabling environment for staff to carryout their duties.

There are three main non-governmental organizations in Nigeria concerned with conservation. These are:

- The Nigerian Field Society, founded in 1930, which publishes an internationally respected journal and organizes meetings and lectures.
- The Nigerian Conservation Foundation (NCF), established in 1982, which is active in organizing and funding conservation projects and in promoting conservation awareness.
- The Nigerian Environmental Study/Action Team (NEST), a research and advocacy agency established in 1987 and dedicated to increasing public awareness of issues of the environment and sustainable development.

Problems of Wildlife Conservation in Nigeria

There are social and ecological problems facing the conservation of wildlife in Nigeria. Ayeni (1980) identified the major problems of wildlife conservation as wildlife poaching, illegal grazing of livestock in the reserves and indiscriminate setting of fire to vegetation in the wildlife conserved areas. One other factor is the lack of manpower and funds.

Game poaching: Illegal hunting (poaching) has continued to threaten with extinction many kinds of wildlife game in Nigeria. Despite the many laws regulating hunting and fishing, poaching continues in many places. The immediate effect of poaching is the decimation of game. Poachers use dangerous means to trap wildlife near farms. Traditional muzzle-loader dane guns are used by hunters for the indiscriminate shooting of different species of wildlife during daylight, while carbide lamps are used to blind

them during night hunting expeditions (Ayeni, 1985). This continues to have debilitating effects on wildlife conservation in Nigeria.

Illegal Grazing of Livestock in Reserves: Habitat destruction constitutes one of the main threats to wildlife today. During the dry season, the Fulanis grazing their livestock in wildlife conservation areas normally attack carnivores which are a constant threat to their stock. In the same vein, leguminous trees such as *Afzelia africana* and other wild plants that serve as sources of feed and protein to the wild game are cut down by the Fulanis as they invade reserves in search of pasture. This act continues to pose a serious threat to the conservation of wildlife in the country.

The Carnage Effect of Fire: In order to provide an early flush of palatable tender grass for wild animals, early burning is done between November and January by forest officers. Despite this, however, fires originating from outside the Park and those set by poachers often penetrate and burn up protected areas. Besides, repeated early burning has been found to result in the decreasing growth of perennial grass. Uncontrolled use of fire often causes multifarious damage in conservation areas.

Lack of Manpower and Funds: Although, Nigeria is rich in proposed and gazetted wildlife conservation areas, the level of supervision and enforcement of policies in the wildlife areas which constitute about 3% of the land areas is extremely low (Afolayan, 1980). In many states, there is no trained personnel to work in the wildlife conservation areas. This is expected because at the University of Ibadan, for example, the number of students in the final year class of the Department of Wildlife Management for the 2002/2003 Session is only three. Coupled with this is the grossly inadequate infrastructural development in many Game Reserves.

Suggested Measures for Improving the Conservation of Wildlife in Nigeria

There is evidence from literature that wildlife in Nigeria is disappearing at an alarming rate (Happold, 2000; Sikes, 2000; Warner, 2003; Persson and Amusa, 2004). For effective wildlife conservation towards the realization of optimum benefits, the following measures are suggested:

- (i) There is the need to review and enforce all existing wildlife legislation. It is of high priority that a national wildlife law be promulgated quickly to check the present laxity in wildlife conservation and utilization. However, it is not enough to enact conservation laws without providing alternative employment for the poachers. In other words, any wildlife policy that does not include the rights of the indigenous community to utilize game for meat is not likely to succeed in Nigeria.
- (ii) Tourist promotion infrastructures and facilities such as good network of roads, water holes, salt-licks and tourist lodges should be developed in all conservation areas.
- (iii) There should be advocacy for the improved funding of conservation activities in Nigeria. The government and management authorities of protected areas should encourage adequate research and full utilization of the results of various

experiments carried out by scientists in this country and in other parts of the world.

- (iv) Education is central to the continuous management of wildlife in Nigeria. This would involve adequate and proper training of personnel and enlightenment campaigns for citizens on the importance of wildlife conservation.
- (v) Above all, there is the need for re-organization of our established protected areas such as the National Parks, Forest Reserves and Zoological Gardens. Parks, Reserves and Zoological Gardens should be re-ordered based on themes and criteria of national significance which include geological, cultural, biological, aesthetic, scenic and other environmental characteristics considered worthy of conservation from the national point of view. There is no doubting the fact that this process may alter the boundaries of existing Parks and Reserves, but it will also go a long way to ensure an integrated, effective and sustainable management of these protected areas.

From the fore-going, the role of Zoological Gardens in conservation and national development will be discussed in this paper under the following broad headings:

- Education Programme and Conservation
- Benefits of *ex-situ* production
- Problems with *ex-situ* production
- Recreational experiences

Education Programme and Conservation

Education programmes provide visitors with fun, hand-on, relevant educational interactions with zoo's plant and animal's collection. These programmes are designed to foster the development of values supportive of species survival, biodiversity, habitat preservation and environmental stewardship (Miller *et al.*, 2004). A few of such programmes are highlighted below:

- Educational Programmes provided onsite through tours, family programmes, zoo camp, scout programmes, keeper talks and behind-the-scene tours.
- Exhibits contain engaging graphics detailing information on animals, their habits and habitats.
- Outreach programmes are provided through zoomobile programmes in schools and communities and web-based information and interactive programming for those who are unable to visit the zoo.
- Partnership with hospitals, clinics etc. to bring about programming into their pediatric section through videos.
- Development of curricula to help students and teachers meet required standards e.g. development of a web-based game "Zoo Matchmaker Game" to help teach genetics (Adelmann, 2006); delivery of innovative curriculum in Schools of Environmental Studies all over the world; teaching programme on the relationship between *ex situ* production and *in situ* conservation (IUCN, 2006).

Benefits of *Ex situ* Production:

- The most frequently cited benefit and the one used to justify procedures in the Convention on International Trade in Endangered Species of wild fauna and flora

- (CITES) for specimens derived from *ex situ* production can provide a source of founder stock for re-introduction of the species to suitable habitat from which it had been lost. Such production can also be a source of breeding stock to revitalize depleted populations with a reduced gene pool.
- Properly managed *ex situ* facilities that are re-stocked in a regulated and sustainable fashion can add value to the wild harvest and thus enhance the economic incentives to conserve the habitat, especially where it would be difficult to meet demand entirely from specimens. Crocodile ranching often achieves the same goal, although the benefits are variable by species and country. In other words, sustainable use of *ex situ* populations may contribute to *in situ* conservation.
 - The benefits for *in situ* conservation of observations and research carried out on *ex situ* specimens should also be noted. Such specimen can provide a wealth of information on the behaviour, genetics, husbandry and veterinary requirements of such species, much of which can be applied to *in situ* populations. In addition, the continued development of breeding and propagation skills makes it ever easier to breed/propagate vulnerable taxa where this was difficult in the past.

Problems with *Ex Situ* Production:

- To what extent the negative aspects of *ex situ* production are significant is a matter of debate and varies from case to case. The problem of extrapolating from individual cases to wide generalizations has bedeviled this issue and caution is necessary, especially when so much of the evidence is anecdotal.
- One risk has been noted, namely that of the existence or purported existence of breeding facilities can facilitate the laundering of specimens taken illegally from the wild. For highly desirable species with high market value, the existence of a legitimate source of *ex situ* specimens can act as an incentive for illegal trade (through laundering of wild-caught specimens) unless the scale of *ex situ* production is such that it can meet demand even from captive-bred specimens is discouraged demonstrates the concern that this work can outweigh any conservation benefits.
- Another frequently cited risk is that bulk *ex situ* production can ‘undercut’ sustainable harvest from the wild and thus remove the main incentive for communities to conserve the species in its habitat. Again, examples have been cited at previous Animals Committee meetings (AC 19 for example) but the extent of this phenomenon is unclear.
- A third and perhaps more significant risk is that specimens may escape and become invasive or at least become a source of genetic pollution.

Economic Aspects of *Ex Situ* Production:

In the previous discussion these were the most contentious aspects and they draw in many of the considerations discussed above. Although, the stated intention of this document is to remain, there are number of economic or quasi-economic factors that could impact on the achievement of CITES objectives and these need to be addressed. The most pressing questions are the following:

- *What magnitude of profit is being generated by ex situ production?*
Clearly, in some cases it is substantial. But, taken across the board, it is unclear whether there really is a large untapped resource that could be harnessed for *in situ* conservation purposes. Or are we going to find that, behind the few headline cases where *ex situ* production is generating large profits (in the horticulture, perfume and pharmaceutical industries for example), there are numerous other cases where these are marginal, eg. hobbyists simply disposing of surplus stock? Some *ex situ* production – such as conservation-oriented breeding programmes – could even be loss-making in economic terms. In the United States of America, a zoo-based loan programme for giant pandas (regulated by the U.S. Fish and Wildlife Service) returns millions of dollars annually to China for conservation work directly related to the species in the wild, while specifically prohibiting participating zoos in the United States from making a financial profit on the loan of the animals (IUCN, 2006).
- *To the extent that the production is not profitable, to what is it balanced out by some of the non-financial benefits referred to above?*
Non-financial benefits would include the provision of stock for re-introductions, transfer of veterinary and behavioural knowledge, etc.

Recreational Experiences

Zoological Gardens provide family-oriented recreational experiences that are educational as well as entertaining. Visitors to zoo have fun and leave with a greater understanding, appreciation and respect for animals and nature. With a good collection of zoo animals, visitors running from thousands into millions would be expected. New and exciting exhibits are developed as funding is available and visitors to more advanced zoological gardens, like Minnesota zoo (Adelmann, 2006) have the opportunity to view live animal shows featuring dolphins and bird collections.

The zoo is dedicated to delivery conservation programmes locally, nationally and internationally. Conservation efforts strive to preserve biodiversity and promote an understanding of animals and nature. Zoological Gardens partners with other organizations to promote the survival of threatened and endangered species and ecosystems by striving to achieve the following:

- Participating in organized species survival plans like worldwide tiger conservation programme through the Tiger Global Conservation strategy and other re-introduction programmes.
- Maintaining an animal collection plan to guide the zoo's long-range planning and the cooperative efforts of the conservation and education programmes to create rich experiences for visitors
- Utilizing a conservation plan to define, prioritize and guide the zoo's local and international conservation goals.
- Establishing an "Exhibit Master Plan" to evaluate and define each exhibit trails' mission, organization and species selection, and to guide future growth of Zoological Gardens and its collection are updated regularly (Adelmann, 2006).

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