

NATURE CONSERVATION FOR ECO-TOURISM: THE CASE OF CERCOPAN, CALABAR, NIGERIA

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Abstract

Man's assiduous efforts to interfere on environment enhance his socio-economic development. These quests, however, throw major challenges, which are underpinned by the threat to the ecosystem. Man and other creatures are invariably the recipients of such negative impacts as climate change, land and water degradation, population pressure, extinction (animals and plants), deforestation, desertification, oil spillage, biodiversity loss and other forms of environmental stresses. This paper reports on the research conducted in 2011 in the Centre for Education, Research and Conservation of Primates and Nature (CERCOPAN), Calabar, Nigeria, which deals with rescued, captured and donated primates. Species were quarantined, nurtured, rehabilitated and sent back to protected wild habitats. Findings showed that the environment can be holistically ameliorated through afforestation and conservation.

Introduction

The quest for man's survival on earth necessitated the forage and acquisition of other necessities of life for his wellbeing and better life. This, however, satisfies or dissatisfies man directly or indirectly with positive or negative impacts. His inherent interferences on earth, no doubt, affect other creatures in the same vein. His acts of alterations in exploitations and explorations in the name of unsustainable development induce major environmental challenges underpinned by the threat to the ecosystems on which the people depend, resulting to population pressure, land and water degradation, deforestation, desertification, biodiversity loss and other forms of environmental stresses.

The consequences of these interferences result in environmental problems, which research must redress for poverty alleviation, improved health conditions and standard of living for the present and future generations. To this end, the Centre for Education, Research and

Conservation of Primates and Nature (CERCOPAN), Calabar, Cross River State, Nigeria, deals with rescued, captured and donated primates. The proactive measures are aimed at achieving high quality level of environmentally friendly ambience towards enhancing attractive eco-tourism, since tourists are increasingly becoming more sophisticated and discerning, expecting "good value" for money in their visits. Testimonial evidence of afforestation and conservation are the booming wildlife eco-tourisms in Kenya, Tanzania and Uganda in East Africa and in Egypt and Algeria in North Africa.

This paper reports on the research conducted in 2011 in CERCOPAN on afforestation and conservation as means of ameliorating the environment. Species were quarantined, nurtured, rehabilitated and sent back to protected wild habitats. Findings showed that the environment can be holistically ameliorated through afforestation and conservation.

Conceptual and theoretical framework

Human Impacts

Homo sapiens have been the cause of many species' extinction. Due to the human propensity to shape and modify the environment for economic development, the habitat of other species often become altered or destroyed. Even before the modern industrial era, human activities were having widespread, catastrophic effects on the environment, such as found in Aboriginal Australians and Australian mega fauna (Miller, 2005). Aboriginal hunting practices, which included burning large sections of forest at a time, eventually altered and changed Australia's vegetation so much that many herbivorous mega fauna species were left with no habitat and were driven into extinction. Once herbivorous mega fauna species became extinct, carnivorous mega fauna species soon followed because the food for the latter had disappeared.

In the recent past, humans have been responsible for causing more extinction within a given period of time than ever before. Deforestation, pollution, anthropogenic climate change and human settlements have all been driving forces in altering or destroying habitats (Barnosky, 2011). The destruction of ecosystems, such as rainforests, has resulted in countless habitats being destroyed. These biodiversity hotspots are home to millions of habitat specialists, which do not exist beyond a tiny area (Myers, 2000). Once their habitat is destroyed, they cease to exist. This destruction has a follow-on effect, as species which coexist or depend upon the existence of other species also become extinct, eventually resulting in the collapse of an entire ecosystem (Brooks, 2002). These time-delayed extinctions are referred to as the extinction debt, which is the result of destroying and fragmenting habitats.

Environmental degradation

Environmental degradation is the deterioration of the environment through

depletion of resources, such as air, water and soil; the destruction of ecosystem and the extinction of wildlife. It is defined as any change or disturbance to the environment perceived to be deleterious or undesirable (Johnson et al, 1997). The United Nations International Strategy for Disaster Reduction defines environmental degradation as "The reduction of the capacity of the environment to meet social and ecological objectives, and needs" (ISDR, 2004).

Environmental degradation is one of the ten threats officially cautioned about by the High Level Threat Panel of the United Nations. The World Resources Institute (WRI), UNEP (the United Nations Environment Programme), UNDP (the United Nations Development Programme) and the World Bank alluded to environmental degradation in the health and environment report made public worldwide on May 1, 1998.

Afforestation

Afforestation is the establishment of a forest or stand of trees in an area where there was no forest (Andrea, 2002). Reforestation is the re-establishment of forest cover, either naturally (by natural seeding, coppice, or root suckers) or artificially (by direct seeding or planting) (Gerrit, 2007). Many governments and non-governmental organizations directly engage in programmes of afforestation to create forests, increase carbon capture and sequestration, and help to anthropogenically improve biodiversity.

In some places, forests need help to re-establish themselves because of environmental factors. For example, in arid zones, once forest cover is destroyed, the land may dry and become inhospitable to new tree growth. Other factors include overgrazing by livestock, especially animals, such as goats, cows, and over-harvesting of forest resources. Together these may lead to desertification and the loss of topsoil.

Without soil, forests cannot grow until the long process of soil creation has been completed - if erosion allows this. In some tropical areas, forest cover removal may result in a duricrust or duripan that effectively seal off the soil to water penetration and root growth. In many areas, reforestation is impossible because people are using the land. In other areas, mechanical breaking up of duripans or duricrusts is necessary, careful and continued watering may be essential, and special protection, such as fencing, may be needed.

In North Africa, the Sahara forest project coupled with the Seawater Greenhouse has been proposed. Some projects have also been launched in some countries, such as Senegal, to reverse desertification. As of 2010, African leaders were discussing the combining of national countries in their continent to increase effectiveness. In addition, other projects, such as the Keita project in Niger, have been launched in the past, and have been able to locally reverse the damage done by desertification (Gerrit, 2007).

Conservation

Natural Habitat

The natural environment is a source for a wide range of resources that can be exploited for economic profit. For example, timber is harvested from forests and clean water is obtained from natural streams. However, land development from anthropogenic economic growth often causes a decline in the ecological integrity of nearby natural habitat. There is economic value in conserving natural habitat. Financial profit can be made from tourist revenue, particularly in the tropics, where species diversity is high. The cost of repairing damaged ecosystems is considered to be much higher than the cost of conserving natural ecosystems (Noidoo, 2005).

Habitat loss

Habitat loss and destruction can occur both naturally and through anthropogenic causes.

Events leading to natural habitat loss include climate change, catastrophic events (such as volcanic explosions) and through the interactions of invasive and non-invasive species. Natural climate change events have previously been the cause of many widespread and large-scale losses in habitat. Previously known warm areas in the tropics (the most sensitive habitats on Earth) grew colder, and areas, such as Australia, developed radically different flora and fauna from those seen before. The mass extinction events have also been linked to sea level changes, indicating that large-scale marine species loss was strongly influenced by loss in marine habitats, particularly shelf habitats (Andrea, 2002).

Habitat conservation

Habitat conservation is a land management practice that seeks to conserve, protect and restore, habitat areas for wild plants and animals, especially conservation reliant species, and prevent their extinction, fragmentation or reduction in range. ("Habitat Conservation", 2009). Habitat conservation is important in maintaining biodiversity, an essential part of global food security. There is evidence to support a trend of accelerating erosion of the genetic resources of agricultural plants and animals (Brooks, 2002). An increase in genetic similarity of agricultural plants and animals means an increased risk of food loss from major epidemics.

Habitat conservation determinant

Determining the size, type and location of habitat to conserve is a complex area of conservation biology. Although difficult to measure and predict, the conservation value of a habitat is often a reflection of the quality (species abundance and diversity), endangerment of encompassing ecosystems, and spatial distribution of that habitat. Habitat conservation is vital for protecting species and ecological processes. It is important to conserve and protect the space/area in which that species occupies (Hierfl, 2008).

Therefore, areas classified as 'biodiversity hotspots', or those in which a flagship, umbrella, or endangered species inhabits are often the habitats that are given precedence over others. Species that possess an elevated risk of extinction are given the highest priority, and as a result of conserving their habitat, other species in that community are protected, thus serving as an element of gap analysis.

Wild life conservation

Wildlife conservation is the preservation, protection, or restoration of wildlife and their environment, especially in relation to endangered and vulnerable species. All living non-domesticated animals, even if bred, hatched or born in captivity, are considered wild animals.

Wildlife represents all the non-cultivated and non-domesticated animals living in their natural habitats. Our world has many unique and rare animals, birds and reptiles. However, the pressure of growing population in different parts of the world has led to the increasing need of using land for human habitations and agriculture. This has led to the reduced habitat of many wild animals.

The major threats to wildlife can be categorized as:

- *Habitat loss*: Fewer natural wildlife habitat areas remain each year. Moreover, the habitat that remains has often been degraded to bear little resemblance to the natural wild areas which existed in the past.
- *Climate change*: Because many types of plants and animals have specific habitat requirements, climate change could cause disastrous loss of wildlife species. A slight drop or rise in average rainfall will translate into large seasonal changes. Hibernating mammals, reptiles, amphibians and insects are harmed and disturbed. Plants and wildlife are sensitive to moisture change so, they will be

harmed by any change in the moisture level.

- *Pesticides and toxic chemicals*: Pesticides are deliberately spread to make the environment toxic to certain plants, insects, and rodents, so it should not be surprising that other plants and wildlife are deliberately harmed at the same time. In addition many chemical pollutants are toxic to wildlife, such as PCBs, mercury, petroleum by-products, solvents, antifreeze, etc.
- *Hunting and poaching*: Unregulated hunting and poaching causes a major threat to wildlife. Along with this, mismanagement of forest department and forest guards triggers this problem.
- *Natural phenomena*: Floods, earthquakes, volcanoes, lightning, forest fires.
- *Pollution*: Pollutants released into the environment are ingested by a wide variety of organisms.
- *Over-exploitation of resources*: Exploitation of wild populations for food has resulted in population crashes (over-fishing, for example).
- *Accidental deaths*: Car hits, window collisions (birds), collisions with ships (whales).

The Conservation Movement

For much of human history, nature had been seen as a resource, one that could be controlled and used for personal and economic gain. The idea was that plants only existed to feed animals and animals only existed to feed man (Thomas et al, 1983). The land itself had limited value only extending to the resources it could provide, such as minerals and oil. Throughout the 18th and 19th centuries, social views started to change and in 1872 the world's first national park, the Yellowstone National Park in the United States of America, was declared (Haines et al, 1996). After that official conservation movement began.

Rather than focusing on the economic or material benefits associated with nature, humans began to appreciate the value in the nature itself and the need to protect pristine wilderness.

By the middle of the 20th century countries such as the United States, Canada, and Britain understood this appreciation and instigated laws and legislation in order to ensure that the most fragile and beautiful environments would be protected for generations to come. Today with the help of NGO's, not-for profit organizations and governments world-wide there is a stronger movement taking place, with a deeper understanding of habitat conservation with the aim of protecting delicate habitats and preserving biodiversity on a global scale.

The Nature Conservancy and CERCOPAN

Since its formation in 1951 The Nature Conservancy has slowly developed into one of the world's largest conservation organizations. It is currently operating in over 30 countries, across 5 continents world-wide. The Nature Conservancy currently has a large number of diverse projects in operation. They work with countries around the world to protect forests, wildlife, river systems, oceans, deserts and grasslands. In all cases the aim is to provide a sustainable environment for both the plant and animal life forms that depend on them as well as all future generations to come. This is the case of Centre for Education, Research and Conservation of Primate and Nature (CERCOPAN) in Calabar, Nigeria, which preserves and conserves primates threatened by extinction. Founded in 1995 by Canadian Zena Tooze, CERCOPAN is now one of the leading environmental non-profit, non-government organizations working for conservation in Cross River State, Nigeria, with excellent relationships with governments at both state and federal levels, and with a support organization in the United Kingdom.

Its primary areas of work are primate rehabilitation, environmental education, community rainforest conservation, and

research. CERCOPAN has two sites, its administrative and primate rehabilitation headquarters in Calabar, and international research and education centre at Rhoko, Iko Esai (their community partners). Partners include the Cross River State Forestry Commission, the Cross River National Park and the University of Calabar.

The forests of this biodiversity 'hotspot' where CERCOPAN works is known as the Cameroon faunal region, and includes the area east of the Cross River and south west Cameroon. The primate community of this region is particularly rich with over a dozen indigenous species. Together with the area of the Niger Delta west of the Cross River, some of the most endangered primates in Africa are found there. These include the Slater's guenon (*Cercopithecus sclateri*), Red-eared guenon (*Cercopithecus erythrotis*), Drill monkey (*Mandrillus leucophaeus*), and the red-capped mangabey (*Cercocebus torquatus*). Other species include the Mona guenon (*Cercopithecus Mona*), the putty nosed guenon (*Cercopithecus nictitans ludio*), the crowned guenon (*Cercopithecus pogonias*), Preuss' red colobus (*Procolobus preussi*) and several prosimians. Further north, there are also savannah species, *Cercopithecus tantalus* and *Erythrocebus patas*. Many of these species coexist in the same primate communities, often forming mixed species assemblages for feeding and resting. Some details of these species are given below.

CERCOPAN considers education a priority, and has welcomed visitors from the beginning. It has a dynamic education programme in both Calabar and Rhoko. Without an extensive education programme, all efforts towards conservation and rehabilitation of primates would be in vain. The hope for the future of Africa's wildlife is with the young people of today being educated on environmental conservation. Resources are very scarce, and young Nigerians need exposure to the wonders of nature and animal behaviour - something that is taken for granted in Nigeria's culture.

Entrance to the Calabar centre is free, and full time education staff has been part of CERCOPAN's programme for the past 8 years. This allows an active outreach programme as well as escorted visits. All visitors to CERCOPAN in Calabar are escorted on a conducted tour of the project. CERCOPAN's goals of forest and primate conservation are explained, and questions and discussion invited. All primate care staff is trained to escort visitors, and they take a participatory approach to learning as much as possible.

CERCOPAN takes pride in education programme, and every year in Calabar alone they welcome over 30,000 visitors annually, including primary, secondary and university students and the general public. It also celebrates World Environment Day (June) in style, where the secondary school students participating in the outreach programme come together to parade through Calabar streets.

Tourism

As the global tourism industry has expanded, clients are becoming more sophisticated and discerning, expecting good 'value for money' in their travels. Another important trend is that more tourists are wishing to participate in recreational and cultural activities. Many are also environmentally conscious, and wish to visit destinations that exhibit a high level of environmental quality, and with environmentally friendly facilities and services. Special interests in tourism, such as eco-,cultural and adventure tourism, is also gaining in popularity, and destinations offering special interest features are attracting these emerging tourist markets. In this regard, many countries of the world are grappling with the associated problems posed by development and industrization, and working towards ensuring liveability and sustainability to enhance tourism.

Tourism and wildlife

Ecotourism is often more than just organized tour of natural sites. It is a purposeful travel to natural areas with a view to understanding

the culture and natural history of the environment. The act should be performed without alteration of the integrity of the ecosystem while producing economic opportunities that make the conservation of natural resources beneficial to the local community. Tourism however is not fully developed in Africa as it is in the developed countries of the world. Wonders of the wild nature are part of the wealth of Africa and of mankind which the world cannot afford to ignore. Some parts of Africa have become popular tourist centres; such is the case with East Africa of (Kenya, Tanzania and Uganda), North West Africa, South and North Africa. East Africa scores high because it has a lot of sunlight throughout the year and this arouse interest in the people from colder regions especially during winter season ([UNEP-WCMC http://parks.it](http://parks.it)).

In East Africa, tourism is best developed in Kenya where the number of tourist increased from 6,000 in 1952 to 328,000 in 1972 and it is estimated that one lion is worth 7,000 US dollars annually.

In Tanzania and Uganda the inflow is lesser. For example L.Nakudu National Park is noted for birds such as flamingo. Malindi and Watamu Marine National Parks are noted for their beautiful coral reefs where over 200species of fish can be seen in the clear waters. Serengeti National Park and Ngorongro in Tanzania, while Uganda, Kabelega and Ruwenzori National Parks offer numerous Tourist attractions. Earnings from ecotourism in Kenya and Tanzania dwarf that of coffee.

In West Africa, it is not yet significant although some countries like Gambia, Ivory Coast, Senegal and Nigeria are trying to build more and improve the existing tourist industries. In Ivory Coast, Senegal and Gambia, the attractions are their beaches for swimming, water skiing, surf riding and sailing.

In Southern Africa, Ethosa National Park of Namibia with some 50,000 big mammals roaming in the wilderness of South Western Africa is worthy of mention as tourist industry.

North Africa is not to be left out in tourist industries especially Algeria and Egypt for their national park with abundant wildlife and

Museums where the oldest pyramid constructed in the world was preserved([UNEP-WCMC http://parks.it](http://parks.it)).

Methodology

Quarantine and rehabilitation

Species were quarantined, nurtured, rehabilitated and sent back to protected wild habitats. Once a newly arrived primate has cleared all tests during a rigorous 3 month quarantine period, the process of social rehabilitation began. First, individuals must learn to become part of a group with their own species. Some took up to a year before

they were fully versed in the social behaviours required of normally functioning members of a dynamic social group. Others, particularly young animals, adapted within days, soon forgetting their human surrogate families. Daily behavioural monitoring evaluated the progress of individuals and changes in dominance hierarchy, as well as facilitated early identification of any illness.

Findings

Afforestation and conservation resulted in holistic amelioration of the environment, thereby enhancing tourism, as well as poverty

alleviation, restoration of biodiversity, improved health and standard of living.

Recommendations

The hope for the future of African wildlife rests on the present generation with the youths as the links of the present and the future. Education geared towards reservation and conservation is pertinent to avoid wildlife extinction; particularly animals and medicinal plants. To achieve environmental friendly sustainable development and habitable ambience for all creatures, the following are recommended:

1. Giving value to nature and forest.
2. Increasing the awareness of local communities on the benefits associated with wildlife conservation and dangers of wildlife extinction.
3. Empowerment of wildlife host community through partnership participation towards discouragement against bush burning, hunting and

poaching for food and commercial purposes.

4. Practical involvement of all citizenry in green environment programmes through guidance and financial inducement in form of grants by government at all levels through non-governmental organizations and association such as Nigerian Environmental Society (NES) and others.
5. Injecting relevant environmental courses in curricula of primary, secondary and tertiary levels and making them compulsory. This will aid in cultural inculcating and cultivation of youths towards environmental reservation and conservation.

Conclusion

World endangered species are nearing extinction and the future generation would be left with illusions and imaginations. Awareness of the dangers of environmental degradation and benefits of environmental

reservation and conservation stand as the practical tools in achieving environmental friendly sustainable development and habitable ambient for all creatures.

References

- Andrea Cattaneo (2002) *Balancing Agricultural Development and Deforestation in the Brazilian A*
- Noidoo, R; Adamowicz (2005). "Economic benefits of biodiversity exceed costs of conservation at an African rainforest reserve". *PNAS* 102 (46): 16712 - 16716.
- Barnosky, A. (2011). "Has the Earth's sixth mass extinction already arrived?". *Nature* 471: 51 - 57.
- Brooks, T. (2002). "Habitat Loss and Extinction in the Hotspots of Biodiversity". *Conservation Biology* 16 (4): 909 - 923.
- Gerrit W. Heil, Bart Muys and Karin Hansen (2007) *Environmental Effects of Afforestation in North-Western Europe*, Springer, 320 pages ISBN 1402045670.
- Habitat Conservation Planning Branch ("Habitat Conservation"), California Department of Fish & Game. Retrieved 2009-04-07.
- Haines, Aubrey (1996). *The Yellowstone Story: A History of Our First National Park: Volume 1 Revised Edition*. Yellowstone Association for Natural Science, History of Education.
- Hierfl, L. A. (2008). "Assessing and Prioritizing Ecological Communities for Monitoring in a Regional Habitat Conservation Plan". *Environmental Management* 42: 165 - 179
- "ISDR Terminology". The International Strategy for Disaster Reduction. 2004-03-31. Retrieved 2010-06-09.
- Johnson, D.L., S.H. Ambrose, T.J. Bassett, M.L. Bowen, D.E. Crummey, J.S. Isaacson, D.N. Johnson, P. Lamb, M. Saul, and A.E. Winter-Nelson. 1997. Meanings of environmental terms. *Journal of Environmental Quality* 26: 581-589.
- Miller, G (2005). "Ecosystem Collapse in Pleistocene Australia and a Human Role in Megafaunal Extinction". *Science* 309: 287 - 290.
- Myers, N (2000). "Biodiversity hotspots for conservation priorities". *Nature* 403: 853 - 858.
- Thomas, Keith (1983). *Man and the Natural World: A History of the Modern Sensibility*. New York: Pantheon Books. pp. 17 - 25.
- Shwartz, M. W. (1999). "Choosing the appropriate scale of reserves for conservation". *Annual Review of Ecological Systems* 30: 83 - 108.

