

DEGRADED FORESTS IN PROTECTED LANDSCAPES: PROSPECTS OF BIODIVERSITY REHABILITATION IN URHONIGBE FOREST RESERVE, EDO STATE, NIGERIA.

By

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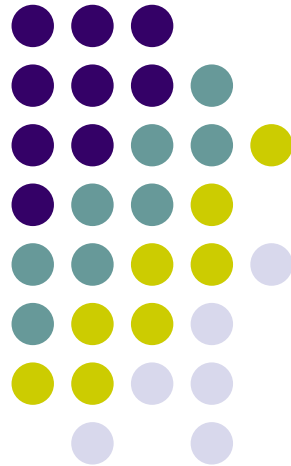
SPDC/NCF/Edo State-BAP Project, Palm
House, Sapele Road, Benin City, Nigeria.

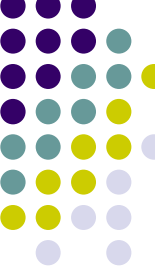
And

His Royal Highness Ogiefo Festus Iduozee

Enogie of Evboesi, Royal Palace, Evboesi
Edo State, Nigeria.

(Rtd. Director of Forestry, Edo State)

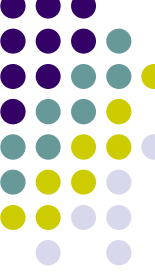




Overview

- Introduction
- Objectives
- Status of Biodiversity in Protected Areas.
- Urhonigbe Forest Reserve (UFR)
- Biodiversity Action Plan Project (BAP)
- Data Collection and Analysis
- Results and Discussion
- Conclusion & Recommendations

Introduction



- The spate of Biodiversity loss in forested landscapes is a global phenomenon.
- The Nigerian vegetation is a composite of Mangrove/Fresh water Swamps, Rainforest, Derived Savanna, Guinea/Sudan, Sahel & Riparian. But no part is spared of biodiversity loss.
- Of the total land area of 1.9 million Hectares with >30% designated protected and in 48 Forest Reserves in Edo State (Fig. 1), over 45% had rainforest vegetation after reserve constitution in the 1930s.
- Edo State has a population of 3.4 million (2006 National Census).

Introduction...Cont'd

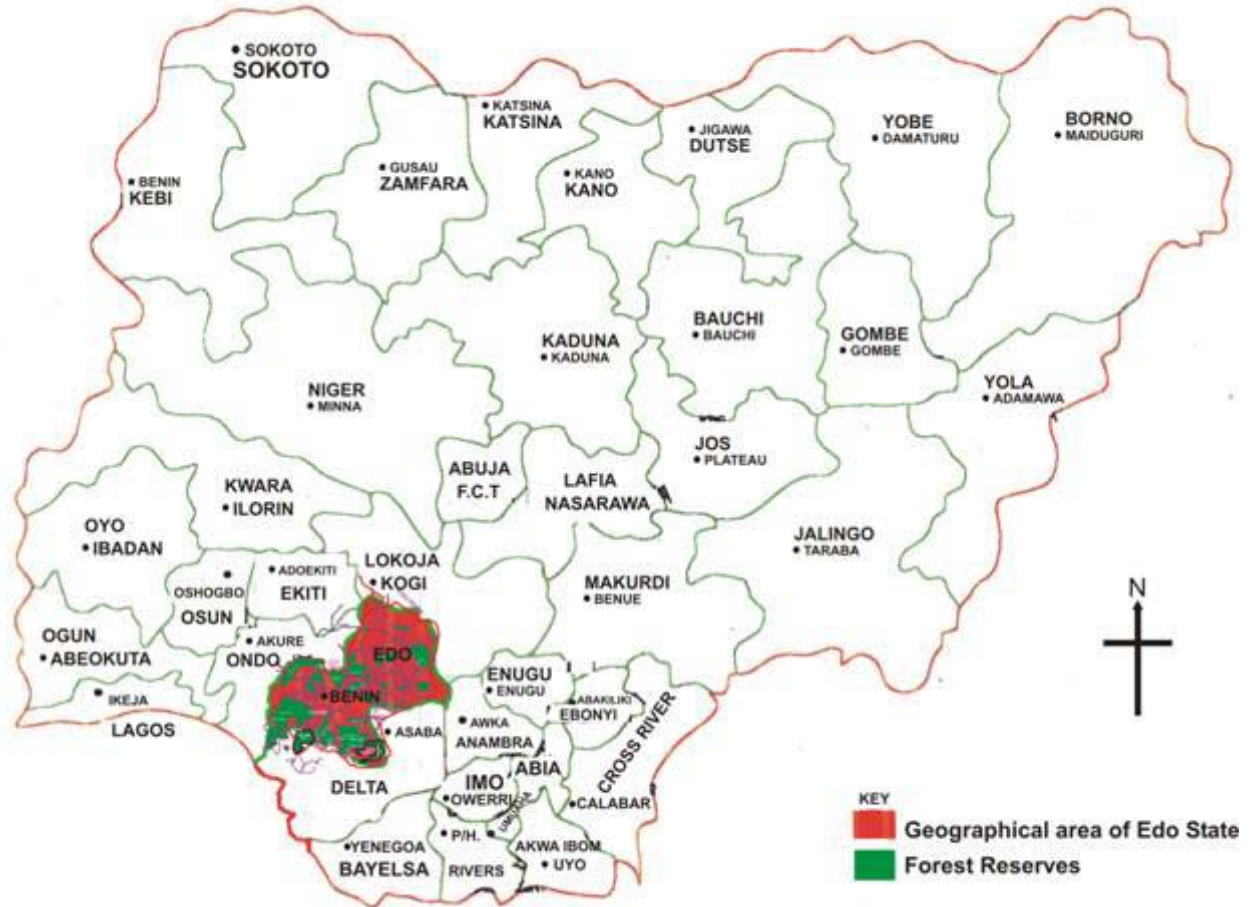
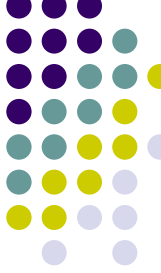
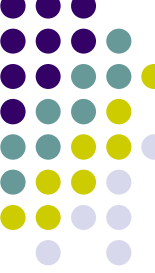


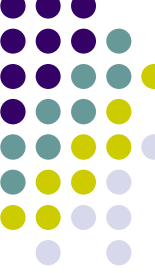
FIG. 1: MAP OF NIGERIA SHOWING EDO STATE AND FOREST RESERVES

Intro... *Cont'd*



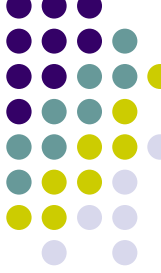
- Biodiversity is in custody of indigenous people living in areas with vast genetic resources (Secretariat of CBD, 2004).
- Forest dependent communities engage in farming and land use practices to support their livelihoods - diet diversification, income generation, minimization of risks, production stabilization, maximization of returns under low technology (Warren, 1992; Altieri, 1987).
- Presently, forests under State protection are facing more human induced threats because those controlled by local communities have long been misused.
- TFK is facing the risk of being lost as biodiversity is increasingly eroded.

Objectives:



- examine extant TFK and local conservation practices in communities,
- evaluate relationships between TFK and Biodiversity in the perspective of the local communities, and
- investigate how TFK can drive landscape rehabilitation efforts in Urhonigbe Forest Reserve.

Status of Biodiversity in Protected Areas in Edo State, Nigeria.

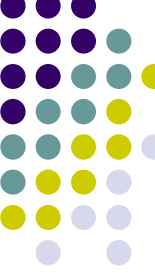


- Forest management and timber exploitation predate forest reservation in Nigeria.
- Forest management systems - e.g. Tropical Shelterwood System (TSS) Plantation forestry that were introduced and given blanket application contributed significantly to the ruins in Biodiversity.
- Farming, lumbering, poaching and land use practices - slash & burn agriculture; unsustainable harvest of timber trees, fuel wood, NTFPs etc., responsible for the spate in forest degradation.

Status of Biodiversity in Protected Areas in Edo State... *Cont'd*



- Reduced forest integrity and species diversity - change from *Gossweilerodendron-Hylodendron-Guarea* association (Bada, 1984) to *Hylodendron-Annonidium* association (Isikhuemen, 2005).
- Size of forest estate under protection in Edo State declined significantly from 576,944ha to 361,304ha (18%) by end of 2007.



Urhonigbe Forest Reserve (UFR)

- Urhonigbe Forest Reserve (size: 30,791Ha) was constituted in the early 1920s.
- It is located on southeastern fringe of Edo State.
- Reserve lies within rainforest zone; have wet & dry seasons; rainfall pattern is bimodal with 2 peaks - July & September.
- UFR is characterized by sandy and acidic soil.

Urhonigbe F/Reserve...Cont'd

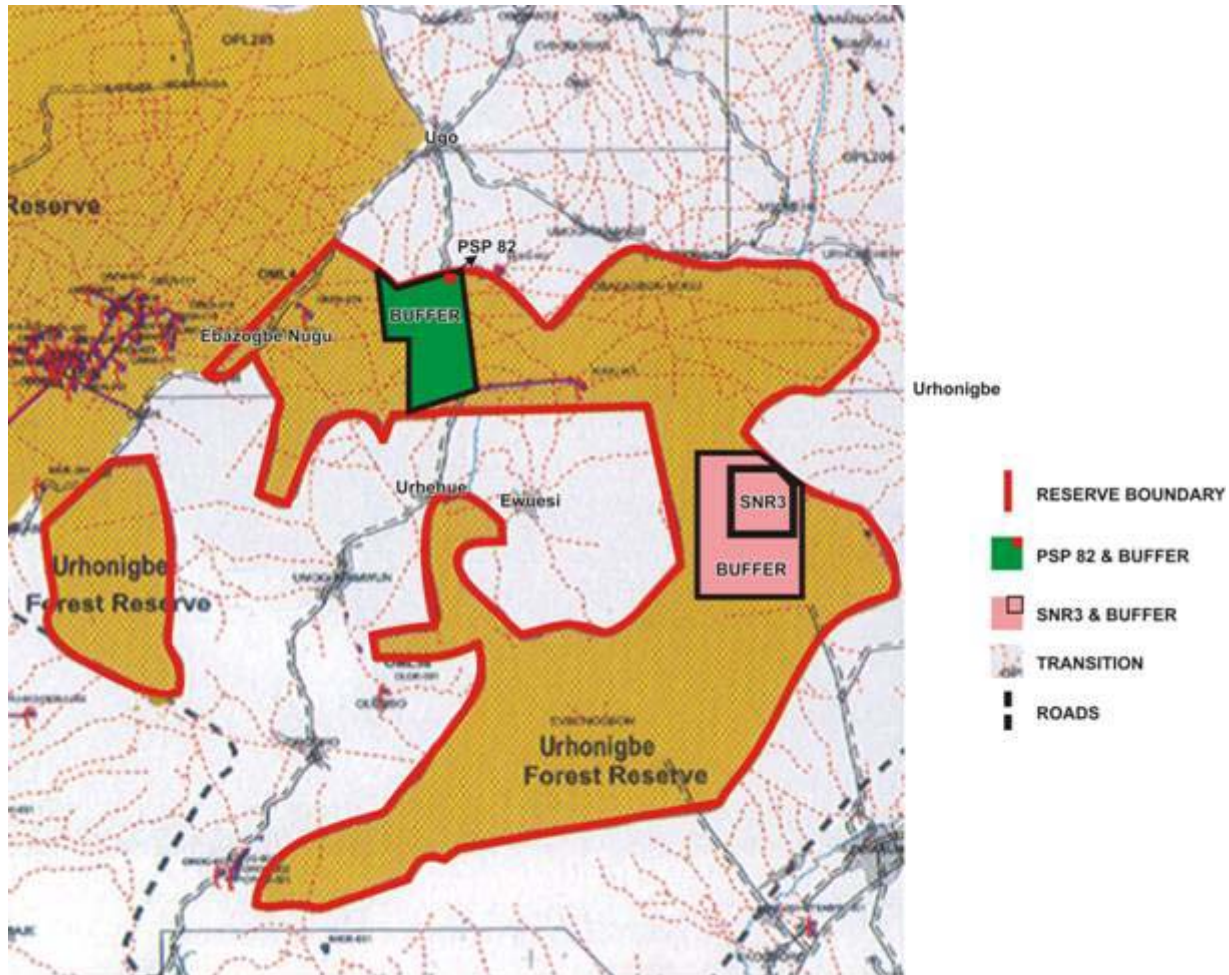
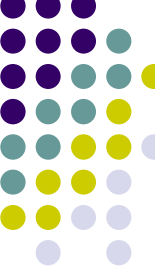


FIG. 2: MAP OF URHONIGBE FOREST RESERVE SHOWING CORE, BUFFER AND TRANSITION

Source: SPDC, 2006

Urhonigbe Forest Reserve... *Cont'd*

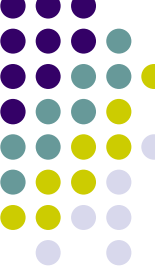
- Original rainforest vegetation replaced by fire-climax and grass communities.
- Remaining forests now secondary regrowth situate in PSP 82 (size 6ha) & SNR 3 (size 300ha) and characterized by trees carrying damaged/ill formed boles and/or crowns.
- 23 communities live in enclaves or fringes of UFR.



Biodiversity Action Plan Project



- NBSAP - most recent published document on Biodiversity in Nigeria.
- Shell Nigeria adopted the Shell Group Standard in 2005, and published the Shell Nigeria Biodiversity Policy.
- SPDC put machinery in motion for the establishment of BAP project for communities living in enclaves or bordering 2 forest reserves in Edo State - Gele Gele & Urhonigbe FRs.



BAP Project... *Cont'd*

- SPDC carried out sensitization/awareness campaigns in respect of BAP project to the domain of stakeholders - Govt. and Communities.
- SPDC provided seed money for BAP in 2006 and facilitated the enactment of Biodiversity Law at the State Parliament.
- BAP project commenced in 2007.

Data Collection and Analysis



- Two Rapid appraisal methods: Key informant and Focus Group Interviews.
- 5 communities - selection criterion based on proximity to SNR 3 (Evboesi & Urhonigbe) and PSP 82 (Ugo, Obozogbe- Nugu, and Urhehue).
- 2,124 farmers & sundry users of forest resources interact /have contact with the SNR 3 and PSP 82.

Data Collection and Analysis

..... *Cont'd*



- Respondents' selection: 12 each for Urhonigbe, Evboesi and Ugo; Urhehue - 8 and Obozogbe-Nugu - 6 (2% sampling intensity).
- Questions in 4 thematic areas posed to 50 respondents (mostly elders) - 24 farmers, 8 hunters, 6 loggers, 7 NTFPs collectors/gatherers; and cross checking of responses and across interviews with 4 elders/retirees.
- Information collected on some species requiring special conservation attention were pooled and relativized using simple percentage.

Results and Discussion:

1. *Biodiversity Action Plan Project*

- State biodiversity law passed and assented to by Government.
- Community profiling preceded building of forest management structures - Forest Management Committees (FMCs) and Grass root Consultative Committees (GCCs).
- Biodiversity inventory and delineation of core and buffer zones at two locations - PSP 82 and SNR 3.



Biodiversity Action Plan Project... Cont'd



- Awareness building and training - livelihood support enterprises (5 beneficiaries), disbursement of micro-credits loans (15 beneficiaries).
- Placement of sign posts in strategic locations around the Forest Reserve.
- Establishment of regeneration nursery (Seedlings raised - *Khaya senegalensis*, *K. ivorensis*, *K. grandifoliola*, *Nauclea diderrichii*, *Terminalia ivorensis* and *Tectona grandis*).



Forest regeneration nursery

2. Lunar and seasonal rhythms and game animals



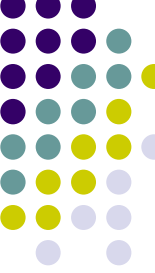
- Foraging game animals follow moon movement to play safe in the hands of hunters.
- Fruits of *Hannoa klaineana* & *Allanblackia floribunda* are easy lure for Brush tail Porcupine.
- *Hannoa* fruit/seed confer bitter taste on the meat of Porcupine, particularly between December and January.



Allanblackia floribunda Fruit



Brush Tailed Porcupine (*Atherurus africanus*)



3. *System of Nomenclature & special Characteristics of species*

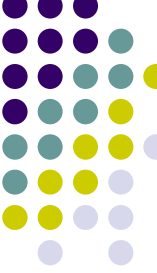


- The Benins have intimate knowledge of forest and its products (Redhead, 1992).
- *Hannoa* and *Okoubaka* bear names in connection with the myth that trail them.
- The only plant known to grow close to *Okoubaka aubrevillei* is *Myrianthus arboreus*.
- Young seedlings and saplings of *Okoubaka sp.* do not appear to exhibit allelopathic properties.



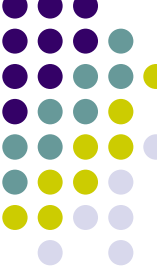
Coppiced Saplings *Okoubaka aubrevillei*
(Left of *O. aubrevillei* is *Myrianthus sp.*)

System of Nomenclature/special Characteristics of species.. Cont'd



Okoubaka aubrevillei

System of Nomenclature/special Characteristics of species ..Cont'd



Hannoa klaineana

System of Nomenclature....

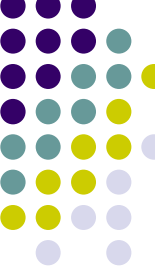
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- Classification of *Guarea* taxa by the Benins was clear and appropriate (Hide, 1943).
- Most terrestrial avi-fauna e.g. Grey Parrot and Crested Hornbill which are dispersal agents of trees in the emergent layer have either migrated or hunted to a critical population level.



Grey Parrot [Pittacus erithacus]

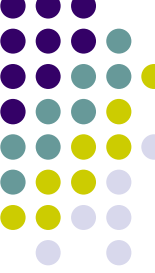


4. *Plant phenology, fecundity and regeneration potentials*



- Frequency of sighting, flock movement, calls, chirps, as well as droppings and foot prints of sedentary and migratory animals around mature trees - potential indicator of flowering and fruiting.
- Most rainforest species produce many flowers and/or fruits but have very few seedlings in the forest floor.
- Respondents attribute it to the existence of male/female type of plants. Male flowers do not produce fruits.
- Species that have seed year (e. g. *Triplochiton sp.*) and seed rain (e.g. *Irvingia spp.*) are exceptions.

Farming and Cropping System



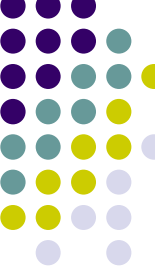
- Livelihoods of BAP Project communities long sustained through subsistence agriculture.
- Number of farmers and frequency of re-entry into fallow blamed for the decline in rotation period and soil fertility.
- Conservation of preferred trees linked to TFK (e.g. *Spondias mombin*, *Amphimas pterocarpoides*, *Newbouldia laevis*, *Blighia sapinda*, *Eribroma oblonga*, *Ceiba petrandra*, *Myrianthus arboreus*, etc.)

Conclusion



- BD laws now operational; BD inventory result applied for delimitation of core, buffer & transition zones; rehabilitation activities are being undertaken through participatory process - 33ha planted in 2007 and 28ha in 2008; loan repayment in progress.
- Constraints identified - depleted soils, derelict trees, prevalence of fire-climax and grass communities, as well as apathy from communities.

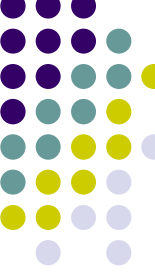
Conclusion.....*Cont'd*



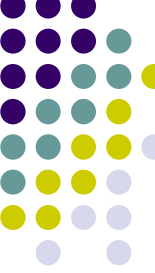
- TFK - an essential instrument for biodiversity rehabilitation.
- Pressure on biotic environment correlates positively with dependence of the poor on subsistence and biomass-based farming and other practices.
- Forest landscape degradation (deforestation) - a major driver of Climate Change.

Recommendations

- Enlarge the scope of BAP project and consider scaling-up rehabilitation activities beyond the frontiers of protected areas.
- Step up efforts to tackle rural poverty by giving special attention to alternative sources of livelihoods as poor peasants would care less about biodiversity if their condition remains unchanged.

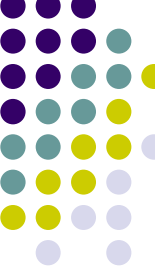


Recommendations... *Cont'd*

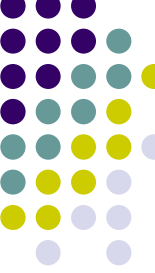


- Intensify awareness campaign for communities to embrace BAP project wholeheartedly.
- The myth surrounding *Okoubaka aubrevillie* should be probed; also consider artificial regeneration for this and other critically threatened species.
- Investigate the phytochemical property contained the seed of *Hannoa klaineana* which is purported to confer bitter taste on the meat of Brush Tailed Porcupine (*Atherurus africanus*).

Recommendations ... *Cont'd*



- Incorporate agro-ecological and incentive driven farming practices into BAP project.
- Consider artificial regeneration of indigenous choice timber, fuel-wood and fruit trees for the rehabilitation work as well as for use in home gardens, wood lots, etc.



Acknowledgements

- We are grateful to: SPDC/NCF/Edo State-BAP Project for study support; IUFRO for financial support to attend this conference; and members of communities in the study area for their cooperation. The insightful comments of Drs. P. C. Kalu, O. T. Aremu, C. E. Ikuenobe and Mr. A. Iziren are gratefully acknowledged.

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THANK YOU

