

A Survey of Sacred Groves: A Panacea for Biodiversity Conservation in Esan Communities, Edo State, Nigeria.

David E. Eighemhenrio, Ekuase, Innocent Omobude

Department of geography and regional planning, igbinideon university, okada, edo state, nigeria.

Department of geography and regional planning, igbinideon university, okada, edo state, nigeria.

Submitted: 01-06-2022

Revised: 05-06-2022

Accepted: 08-06-2022

ABSTRACT

Though sacred groves were primarily established for spiritual purposes, they are significantly contributing to biodiversity conservation. This paper titled “a panacea for biodiversity conservation in Esan communities, Edo State, Nigeria” aimed at surveying and analyzing and unveiling the role of sacred groves in biodiversity conservation. The data for the study were captured through questionnaire administration, focus group discussions, interview schedule and field observation. A total of 100 respondents were interviewed from 20 rural communities spread across 5 local government areas of Esan communities. The study revealed that not less than 350 sacred grooves of three categories exist in the study area; forests for ancestral worship, forest for community deity and forest for burial. Between 2 and 20 sacred groves exist in each community, housing at least 10 villages. Biodiversity richness of the sacred groves was far higher than other forests as they retain characteristics of typical tropical rain forests. Some plant and animal species were preserved and protected for traditional, cultural and medical values. The study recommends that sacred grooves should be preserved and enhanced. That government at all levels as a matter of policy should establish forest reserves in every rural community. Communities should reserve some of their forests as proclaimed forest and manage them without any religious attachments. Individual and family private forestry be encouraged and supported by the government. Tree planting to be enlisted in curricula of rural primary and secondary schools; as these will enhance biodiversity conservation in rural communities in Edo State.

Keywords: Sacred grove, biodiversity, conservation, community.

INTRODUCTION

One of the greatest assets of tropical rain forest ecosystem is their rich flora and fauna diversity. Though accounting for only 7% of the earth dry surface area, about 70% of the plant and animal species of the world inhabit rain forests (Anthwal A. et al, 2010). Rainforests harbour a great diversity of tree species, housing between 100 and 300 tree species per hectare (Bhagwat, 2009). This rich biodiversity of rainforests is partly responsible for the pressure under which they have been subjected to for decades. Globally about 10 million hectares of rainforests are degraded each year, with encroachment, timber exploitation and shifting cultivation being the main causes (Bartkowsiki, 2017).

During the colonial era in Nigeria, steps were taken to create and protect forest reserves throughout the country. Steps were also designed to promote the economic importance of rubber and timber in the country's export trade in the 1st decade of the 19th century. Despite this policy, the problems of forest destruction resulting from shifting fallow system of cultivation and the activities of those engaged in timber and rubber industries were evident in southern Nigerian (Olaniran, 2002).

The poor conservation outcomes that followed decades of intrusive forest resource management strategies and planned development have forced policy makers and scholars to reconsider the role of community in forest resource use and conservation. In a break from previous work on forest resources management and conservation, which considered community to hinder progressive social change, current writing champions the role of community in bringing about decentralization, meaningful participation, cultural autonomy, and conservation (Jimoh, 2001).

The growing recognition that the species extinction crisis has deepened and that there are

limited conservation dollars to address this crisis has had profound influence on the planning methods and conservation strategies of governmental and non-governmental organizations, as well as traditional communities. For example, World Wildlife Fund (WWF) and Conservation International have pinpointed priority ecoregions and biodiversity hotspots that represent some of the most significant remaining regions for conserving the world's biological diversity (Mark, 2017).

CONCEPTS

2.1 Sacred Groves

Sacred groves are forest fragments size varying between 0.5-500 hectares, which are protected by religious communities, and have a significant religious connotation for the protection of community (Banjo et al, 2006). Sacred groves are mini-forests of rich diversity.

Bhandary (2003) opined that sacred groves are patches of primeval forest that some rural communities protect as abodes of deities. In such ecosystem, people draw their livelihoods as nearby resources and value nature for the ecological services it provides. He argued further that sacred groves are a legacy of prehistoric traditions of nature conservation, patches of forests that rural communities in developing world protect and revere as sacrosanct. Deeply held spirit beliefs ensure that not a tree is felled nor a creature harmed within its boundaries. And that in time of dire need, such as village fire outbreaks, permission may however be sought of the groves' deities to extract a limited quantity of wood for reconstruction. The groves often serve as a last refuge for magnificent and ancient trees, as well as for species of lianas, medicinal plants, animals, birds and other wildlife facing extinction as well as creatures that have been rare elsewhere in the landscape.

2.2 Biodiversity

The term biodiversity is a contraction of "biological diversity" or "biotic diversity". These are terms that refer to the idea of living variation, from genes and traits, to species and to ecosystems (Bartkowski, 2017). The new term "biodiversity" energized some fundamental ideas developed over the previous decade. This recognized the idea that living variation itself has current values, because it provides the opportunity for future benefits for humanity, as they provide both "insurance" and "investment" benefits (Convention on Biological Diversity, 2018).

Diaz et al (2018), described biodiversity as nature contributing to people, which includes the maintenance of options for future generations that is provided by biodiversity as a variety. This value

of living variations complements recognized values of individual species, and its accords with the ideal that may refer to the collection of individual species or other units and of amount - of - variation as a property of that collection.

Biodiversity is the variety of all species on our planet. It includes different plants, animals, birds and micro-organisms their genes, their habitats and all the ecosystems (forests, grass-lands, lakes, ponds, rivers, wet-lands and so on).

2.3 Conservation

Conservation requires protection of threatened resources: wildlife, forests, pastures, fisheries, irrigation flows and drinking water. As members of local communities, rely on these resources for their fodder, fuel wood, water, food and thus exploit them without restraint.

Conservation is the act of preserving, protecting or the efficient use and management of natural resources, including biodiversity and habitats, aimed at saving ecological system from degradation and extinction.

However the International Union for the Conservation of Nature IUCN (1980) defined conservation as the protection and management of the environment and natural resources to include three main objectives, as:

- i) The maintenance of essential ecological processes and life support system
- ii) To preserve genetic diversity which being dangerously impoverished
- iii) To ensure sustainable use of species and ecosystem by future generation

2.4 Community

The concept of community has been given different meanings by different people of different works of life. It has also been accorded various contextual meanings; by the ecologists, business experts, religious leaders, academic administrators, the ordinary man etc.

But the sociologists have defined community both in descriptive and evaluative terms; which have been adopted in this research.

According to Girigiri (2010), community refers to indigenes of a locality or a group of people usually residents in a particular locality, having a homogenous culture and shared interests. However, Haralambos et al. (2000) defined community as a group of people having social relationships in a particular geographical area, such as villages, towns, districts of a city, suburbs or slums. Community describes first, people of common decent in a locality like villages, town or city in relation to their mutual goal, interest which brings about bonding and interaction in a given locality either in a village setting or town or

metropolis. Edo state is a large compartment of recognizable communities.

AIM OF THE RESEARCH

The aim of this research is to survey and analyze the role of sacred groves in the conservation of biodiversity in Esan communities in Edo State and to suggest workable methods to enhancing the role of sacred groves, to the communities.

STUDY AREA

4.1 Location and size

Edo state, Nigeria occupies land area of 19,707km² and a medium density of 163% per km² (Collins, 2010). It lies approximately between latitudes 5°45¹ and 7°W¹ and 6°52¹East of the Greenwich Meridian. The state has neighboring states as Delta to the south, Kogi and Ekiti to the north, and Ondo to the west. The east border runs along the River Niger.

4.2 People and Population

Politically, there are 18 local government areas in Edo state. There are five major ethnic groups in the state which include the Binis, Esan, Ora, Affemai and the Akoko-Edo. The Binis occupy the southern part of the state, Esan and Ora occupy the central part of the state and Affemai and Akoko-Edo occupy the northern part of the state. The state has a population of 3,218,332 (1,640,460 males and 1,577,871 females) (NPC, 2006).

4.3 Vegetation

The vegetation is tropical rainforest as described by Keay (1959) and Hopkins (1974). The

vegetation zones of Edo State more or less coincide with the political zones in the state. Edo south is in the moist rainforest, Edo central in the dry rainforest/derived savanna, while parts of Edo North is in the derived savanna/southern guinea savanna vegetation (Beak, 1998). Popular economic trees found in the state include Iroko, African Walnut, Obeche, Ebony, Cedar, White Afara, Mahogany, Oil palm, Raphia palms etc. The bulk of the raw materials that sustain the states wood based industries (formal and Informal) is sourced from the high forest zones.

4.5 Esan People, Location, Population, Occupation and Environment

4.5.1 Esan People (Tribe)

The progenitor of Esan (tribe) communities was the second son of the first emperor, Ogiso, that founded the Benin Empire about 900AD (Egharevba, 2005). He migrated from Benin City to form Esan Kingdom in about 1095AD (Egharevba, 2005). He later divided the kingdom among his sons; to rule as independent kingdoms. Today, every large community (Town) in Esan land, is an independent kingdom. Esan people are hospitable rich in intellect, smart, socio-politically and religiously enterprising and endowed.

The people speak one language; Esan, though with some dialectically variations.

4.6 Location

Esan communities are located in the Edo central senatorial district. They occupy five local government areas:

Table 1: Esan Local Govt. Areas and their Headquarters

S/N	L.G.A	HEADQUATERS
1	Esan Central	Irrua
2	Igueben	Igueben
3	Esan North East	Uromi
4	Esan South East	Ubiaja
5	Esan West	Ekpoma

4.7 Esan Local Government Areas Population Distribution:

Table 2: Population Distribution of the L.G.As
 A brief analysis of the population of the study area as published by NPC, 2006

S/N	L.G.A	POPULATION	MALE	FEMALE	% of the state population
1	Esan West	125842	63785	62057	3.91
2	Esan Central	105310	53834	51476	3.27
3	Esan North East	119346	60434	58912	3.70
4	Esan South East	167721	87535	80186	5.21
5	Igubeen	69639	35141	34498	2.16

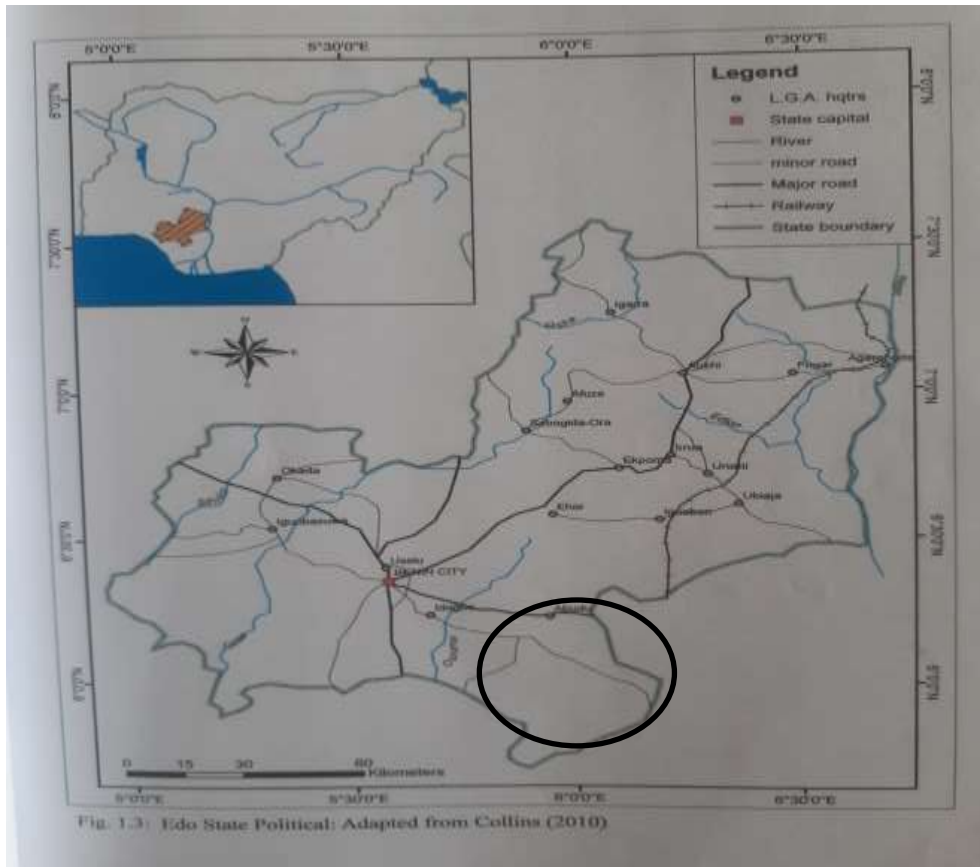
TOT	587,	300,	289,1	18.25
AL	858	729	29	

Source: National Population Commission (2006).

4.8 Occupation and Environment

The economy of Esan people is rural and can be described as primary, traditional and informal. Subsistence farming is practiced in the area and it is characterized by rotational bush fallowing with fallow period ranging between 2 and 3 years (Onokerhoraye, 1995). According to Onokerhoraye (1995), crops cultivated reflect climatic and soil conditions of the area. They include yams, cassava, melon, duka nuts, lettuce and other green vegetables. However, logging is thriving in the area. The Ozigilo people also are commercial fishermen due to the proximity of River Niger. Egharevba (2005) explained that local industries thrive in Edo State; but the Esan are potters, weavers of clothes (Igbeigbei) and music drums makers.

Fig. 1: Map of Edo State, showing study area.



LITERATURE REVIEW

2.1 INTRODUCTION

There is considerable amount of knowledge available about the techniques to achieve various dimensions of biodiversity conservation. It is generally believed that enough is known to manage biodiversity on a more sustainable basis. However, it is also believed that a significant portion of the world's biodiversity is not managed in way that could be described as sustainable.

2.2 Sacred Groves

2.3 Introduction

It is a well-known fact that biodiversity especially in the developing countries of the world are under massive harvests and brutal degradation, by both legal and illegal harvesters, whose actions and activities are presumably tied to survival instinct.

Measures put in place by legal framework appear to be inadequate. Communities are now the locus of conservationist thinking. International agencies such as the World Bank, Worldwide Fund for Nature, The Ford foundation, USAID, etc. (Agrawa, 1999).

Communities down the millennia have developed elaborate rituals and practices to limit off take levels, restrict access to critical resources, and distribute harvests (Bartkowski, 2017).

The concept and beliefs of sacred groves are one of the best practices to conserve the natural resources. Sacred groves are small forest areas that are left untouched by the local inhabitants to be conserved by the local village folk deities and are of special spiritual significance to them. Sacred groves, also known as church forests, fetish forest and sacred forest are found all over the world including Nigeria, Ethiopia, Japan, Morocco, India and Ghana (Cardelus et al, 2013).

The concept of sacred groves has been a part of rich traditional and diverse culture of Indian societies for many generations. They are also known as natural museums of giant trees, treasure houses of threatened species, dispensaries of medicinal plants, regulators of water sheds, recreation centers for urban life, veritable gardens for botanists, genebanks of economic species, paradise for nature-lovers and laboratory for environmentalists (Manikandan et al, 2011).

India is classified under one of the low forest cover countries and account for 23.8% of total geographical area of the country (Forest Survey of India, 2005). There are about 0.63million villages in India, out of which nearly one-third are in the vicinity of forests. Conservation of natural resources including biodiversity has been an

integral part of several indigenous communities in and around the forest areas. The concept of sacred groves is very old and has existed since the time of Rig-Veda (an ancient India sacred collection of Verdic Sanskrit hymns), when trees worship was very popular and universal in India.

About 1,000,000 to 1,050,000 sacred groves are reported in India (Malhotra et al, 2007). Different scientific reports revealed that these sacred groves can support and conserve different fauna and flora (Ray and Ramachandra, 2010); Singh et al, (2010); Tripathi(2004). India ancestors were fully aware about the importance and significance of natural resources that sustained them, which were necessary to be conserved for the sustenance of future generations.

In western Nigeria (home of the Yorubas), Sacred groves are believed to be a treasure house of medicinal and aromatic plants. Though most of the indigenous people residing near the groves are illiterate, they have scrupulously natured their traditional customs, rituals, ceremonies, a way of forest life through folk beliefs with great vigour.

The role of sacred groves in biodiversity conservation in south-western Nigeria was investigated in Osun-Osogbo and Igbo-Olodumare sacred groves and compared with degraded and primary forests. All trees (diameter at breast height (dbh) ≥ 10 cm) were identified and their dbh values measured in each of the 48 temporary sample plot of 20m x 40m. Tree seedlings were assessed within 5m x 10m quadrat. Osun-Osogbo grove had the highest species abundance (61), diversity index (3.54), and number of seedlings (66 species), species evenness (0.66) and percentage of endangered tree species (32.6%) which indicated its importance in in-situ biodiversity conservation (Banjo et al, 2006). The lower diversity indices of Igbo-Olodumare grove is attributed to its rockiness and low sacredness, which has led to encroachment.

Diaz et al (2018) explained that gods are associated with animals, birds and creatures in some rural communities in Ghana and Ethiopia. This concept is to promote harmony in nature to maintain ecosystem. Protection of animals and other creatures along with human beings is essential to maintain ecological balance. As a result, all categories of wild and domesticated animals, trees, shrubs and medicinal herbs, were identified and attached to gods; to regulate and restrict uncontrolled harvest and their usage, thereby conserving them. Certain smallparchesof forests have been designated as sacred forest; which only the priestscan access; only for rituals for the good for all in their localities. It was also

reported that some of the species of these creators have lived well over five hundred years in the groves.

2.4 Historical Origin of Sacred Groves in Esan Communities, Edo State, Nigeria.

The origin of sacred groves in Esan communities dates back to antiquity, when there were massive settlement evolvment, resettlement and the need to live in safety as a result of inter-tribal wars and conquest. (Egharevba, 2005)

The desire to acquire more freedom, land and resources, prompted the early dynasties into wars, which later resulted in heavily fragmented small isolated and dispersed settlements, during the reign of the first Ogiso dynasty in 900AD, in the old Benin Empire (Egharevbe, 2005).

The strong beliefs that ancestors are the guiding spirits, that protect the people, make them prosperous through bumper harvest of farm products, peace and harmony; still hold sway in the rural areas of Esan communities, even in this church era of widespread Christianity and modern civilization. As the average rural dweller is a traditionalist, the need to set certain parts of their settlements apart for religious purposes could not

be ignored, hence sacred groves in Esan communities.

Sacred Groves are integral parts of the people’s customs. The maintenance and observance cannot be detached from the way of life of the people. This is why sacred groves have thrived till date and will continue to thrive among the rural people. (Olajuwon, 1981).

2.5 Organization of Rural Space in Esan Communities

2.5.1 Locations of Sacred Groves

The rural space has considerable elements of organization and planning which does not conflict in terms of uses. The uses in which the rural space is put, are ordered in forms of rings. The core is inhabited by the king and his immediate family, the next, by his first class chiefs and other family members of the king, next for the other members of the king’s immediate environment, the village (Eguare), next is the Sacred Groves and burial sites and finally, farmlands and other activities. However, due to modern development, these arrangements are no longer conspicuously visible, but are still in existence.

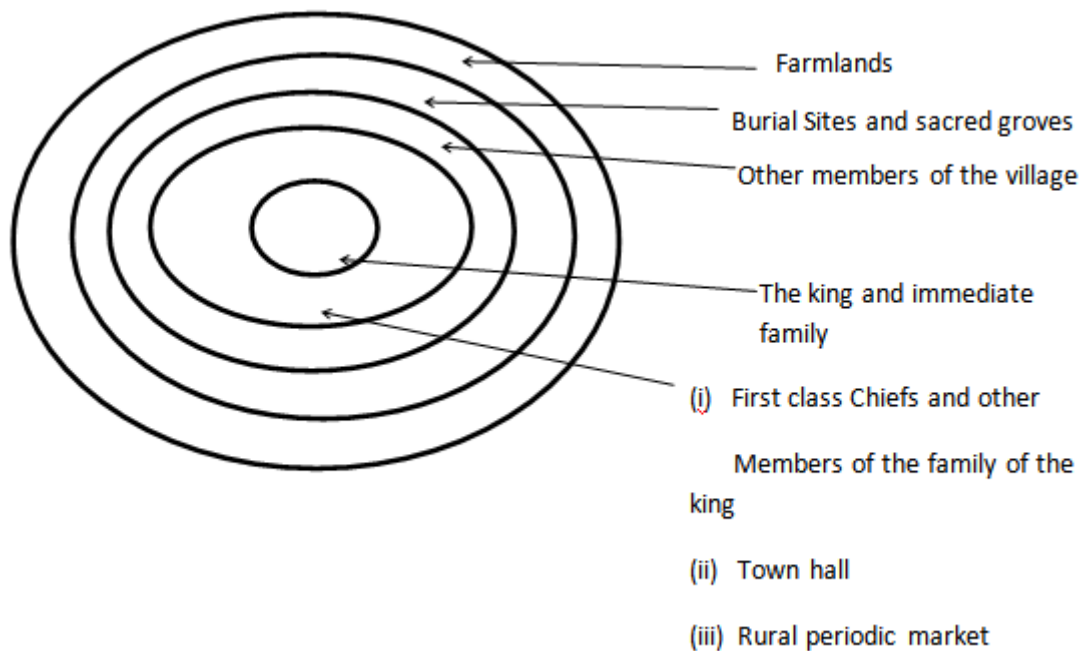


Fig 2: Organization of Rural Space, in Esan Communities

2.5.2 Sacred Groves: A Pragmatic Biodiversity Conservation Approach

Simply defined, Sacred Groves, refer to a part of the forest environment, within a rural

settlement, meant for religious veneration, not trespassable by all, not secular or profaned. An area that is highly valued. (Udo, 1981).

There are three categories of Sacred Groves in Esanland (i) Forest shrine of Ancestral Worships by Traditional Monarchs, (ii) Forest for a community deity (iii) Forest for burial.

The keeping of sacred grooves by rural community people, was not deliberately meant to protect some tree and animal species, but for the worships and veneration of ancestors and deities. In order to ensure that these sacred groves were free from interference from the public, taboos were placed on them by traditional norms. These traditional norms, religiously keep the people out of these forests except for chief priests or priest who offer sacrifices to their ancestors or deities on behalf of their communities. Any trespass by any other person is regarded as an act of sacrilege which attracts heavy punishments or sudden death of such person.

These sacred groves are found in all the communities in Esanland, their reverence and observance are basically the same. For example, at Ebhoatto, a sacred grove called “Alu-Enijie”, is kept and protected from loggers. Every new king performs some rituals at the grove before he becomes a king. The king also worships at the grove during important traditional feasts and when evil threatens. Again, at Ewohim, the “Alu-Osua” sacred grove is located close to the king’s palace, where the king performs some sacrifices especially during a feast called ‘Ukpeze’, is believed to bring about peace, increase in farm yields, progress in the land and increase in fertility among the people. Others include Ere-Ido at Edenu, Oghodo at Ugbuakara, Egbo – Itolinmin at Urhohi etc.

However, unconsciously for these communities, they have been able to protect certain parts of their forests against deforestation by their beliefs and practices. And as such, some species of trees and animals have been saved from extinction. The average tree in the sacred groves in Esanland is as old as its community, not less than 1000 years, depending on when the community was founded.

In some communities in Ghana, the practices of dedicating forests to a deity, is an old phenomenon, invariably born of the need to impede the rapid weakening of the traditional taboo system governing resources utilization, and thus to reinforce or strengthen the same. The deity in virtually all the villages remains the much feared god or goddess (Bayo, 2006)

The sole force driving this phenomenon throughout the villages remain the scarce or fast depleting fodder base. It is an effective example of an indigenous conservation practice, utilized by

local community to stop excessive exploitation of communities forests and thus to regenerate them to the extent that sustainable means of exploitation of fodder can be put into effect. Strictly, the norms surrounding the dedicated forests are adhered to, principally out of the inborn fear of the wrath of the presiding deity (Bayo, 2006).

2.6 Methods of Harnessing Resources of the Sacred Groves

Holdren and Ehrlich (1974) argued that the loss of a species or loss of genetic diversity can mean loss of potential uses (medicines, food e.t.c), but also referred to the maintenance and prudent use as “public service”, functions of natural ecosystems.

i. Establishment of Medicinal Gardens

In many cases, gardens for medicinal plants have provided ex-situ conservation for endangered species. They also act as a resource for education about traditional medicinal knowledge itself, and can help teach local people about benefits of cultivation. Harvests in the gardens are restricted and properly timed.

ii. Harvesting Restraint

The type of resource utilization that clearly meets the criterion of conservation design, is harvesting restraints that raise short-term production costs. Examples from the landscape studies, includes a number of sacred pastures and landscapes, where grazing pressure is regulated by means of taboo (Ehrlich, 1974).

iii. Regulating Onset or Duration of Harvest

Controls governing the timing of resource harvests, as well as who has the rights to participate in harvesting are widespread in small-scale societies. One prime examples of the practice in Indian communities, includes the Nanda Astami [celebrated in praise of the local goddess, in the peak in Western Himalaya, in India (Anthwal et al, 2006)].

iv. Traditional Legislation

Sacred groves are preserved and prudently utilized by traditional norms, taboos, which are placed on them, as such keep out unauthorized people from interference with the sacred groves. Harvest of some species of trees, leaves, plant-back, roots and other creatures are carried out by the priest or selected authorized indigenes for the communities; either for collective or individual uses (Egharevba, 2005)

2.7 The Role of Sacred Groves in Biodiversity Conservation

Traditional societies are characterized by their close interconnection with nature and its resources, preserving them, has formed an integral part of their wholistic communal sustainable lifestyle and living.

Sacred groves play important role in soil and water conservation. They improve the soil stability of the region and act as soil blinds. Plants like vetiver grass and eucalyptes are maintained to bind the soil, thereby preventing soil erosion. Sacred groves are the best examples of in-situ conservation of biodiversity, where many plants and animals especially threatened species are found in plenty. Sacred groves are the natural genepool preserver and example of habitat preservation through community participation .Bhagwat (2009) summarized the role of sacred groves to include: Museum of giant trees, treasure houses of

threatened species, dispensaries of medicinal plants, regulators of water sheds, recreation centres for urban life, veritable gardens for botanists, gene banks of economic species, paradise for nature lovers and laboratory for environmentalists. Sacred groves enhance local climates, serve as tourist centres and provides income and employment.

METHODOLOGY

Several approaches that helped to capture the required data for the research were employed. They include structured questionnaire, focus group discussions, interview schedule, and field observation.

Data on sacred groves were collected from 20 rural communities across Esan communities. At least 2 communities were selected from each of the five local government areas that make up Esan Land. A total of 100 persons formed the sample population.

Table 3: Sampled Communities

L.G.A	COMMUNITIES	SAMPLE SIZE
Esan South-East	Ebhoatto	5
	Ewohimi	5
	Ubijaja	5
	Okhue-Esan	5
	Ohordua	5
Esan West	Ekpoma	5
	Opoji	5
	Urhohi	5
	Egoro-Naka	5
Esan Central	Irrua	5
	Ugbegun	5
	Ewu	5
	Edenu	5
Igueben	Igueben	5
	Ogua	5
	Ebele	5
	Ebho-Osa	5
	Ekpon	5
Esan North-East	Uromi	5
	Uzea	5
Total	20 Communities	100

Source: Author's field survey, 2022

3.1

Selection of Respondents

In order to get appropriate responses, household heads were selected and interviewed. Random sampling was employed to select household heads for questionnaire administration.

3.2 Focus Group

Structured interviews and focus group discussions were used to collect information from sacred groves priests, operators, opinion leaders and youth groups on the general management of the sacred groves.

3.3 Use of Questionnaire

The questionnaire was used to elicit information from elderly people in order to gain understanding of the existing realities and experiences of the sacred groves in their domains.

DISCUSSIONS OF RESULTS AND FINDINGS

4.1 Introduction

Recognizing that actors exist at the local level, is a useful step, to consider their different and dynamic interests. A more acute understanding of community in biodiversity conservation can be founded only by understanding that actors within communities seek their own interests in conservation programmes. This study has revealed that diverse cultural beliefs, practices and religious identifications of some floral and fauna, have influenced the folklore towards a sense of service in the names of their gods.

However, modernization, globalization and social beliefs in recent times, have transformed and weakened both cultural and biological integrity of some of the communities in the study area.

Observation and interview held with the traditional leaders, opinion and youth groups, revealed these findings and discussions. As the people and their groves are interwoven and inseparable.

4.2 Sacred Groves in Esan Communities

Three categories of sacred groves exist in Esan communities. They include:

(i) Forest Shrine of Ancestral Worships by Traditional Monarchs.

These category of sacred groves are found in virtually all the communities in Esan land. Their reverence and observance are basically the same.

Every new king performs some rituals at the groves and also worships at the groves during some important traditional feasts. Such groves are not more than two in each large community. Examples include; "Alu-Enijie" at Ebhoatto, "Alu-Osua" at Ewohimi, "Ere-Ido" at Edenu, "Oghodo" at Ugbuakara, etc.

(ii) Forest for Community Deity

This category exists and are found in many communities and villages, but not all. They are reserved for and they house some local deities, which used to be worshipped, as many are no longer worshiped, due to widespread Christianity. However, the forests or groves still exist, with limited access to it for whatever usage. For example, "Apo" and "Alugbodin" in Ebhoatto.

(iii) Forest for Burial

This category is found in all the communities and villages in Esan land. They are strictly for burying the dead, especially for children, youths and adult men and women that did not build a house before his/her demise. These forests are highly venerated in some communities and only accessed for burial purpose. The forests have become shadow of what they represent in some communities. Trespass is common and uncontrolled.

There exist between two and twenty sacred groves in virtually all the communities in Esan land. Every community has a minimum of 10 villages. The flora and fauna are very old, rich, dense and contain all the species of tropical forests.

Their harvests in some communities are restricted, limited and very occasional. And it is done only for collective communal benefits. Not less than 350 sacred groves exist in Esan communities. The average tree in the sacred groves is as old as the community; and none is less than 200 years old, especially in forests for ancestral worship and deity.

4.3 Some flora and fauna (plants & animals) species found in Esan Communities.

Table 4: Trees found in the Study Area.

TREES

ENGLISH NAME	LOCAL NAME	BELIEFS/USES
Iroko	Uloko	Ritual/Economic
Oil Bean	Ugbe	Ritual/Medicine
Obeche	Ikpakpa	Ritual/Economic
Ebony	Ugbofen	Medicine/Economic
Cedar	Owewe	Ritual
White Afara	Okha	Economic
Mahogany	Ohoghe	Ritual/Medicine
Oil Palm	Udin	Ritual/Medicine/Economic
Raphia Palm	Udin-Ayon	Ritual/Medicine/Economic
Neem	Dogoyaro	Medicinal
Ancestral Tree	Ikhimi	Sacred/Ritual

Table 5: Fruit Trees found in the Study Area.

FRUIT TREES

ENGLISH NAME	LOCAL NAME	BELIEFS/USES
Cherry	Otien	Fruit
Cherry specie	Omumum	Fruit
Cherry specie	Okpiro	Fruit
Red fruit	Okpan	Fruit
Pear	Orhumhu	Fruit
Pear specie	Orhishi	Fruit
Velvet Tamari	Ohiomhen	Fruit
Mango	Imango	Fruit/Medicine
Banana	Ogede	Fruit/Medicine
Plantain	Ogede-Erhan	Fruit/Medicine
Duka Nut	Ohele/Owii	Fruit

Table 6: Leaf Vegetables found in the Study Area

LEAF VEGETABLES

ENGLISH NAME	LOCAL NAME	BELIEFS/USES
Bitter Leaf	Oriwo	Veg/Medicine
Scent Leaf	Alanmhonkho	Veg/Medicine
Vegetable Leaf	Ikpaghudo	Medicinal
Vegetable Leaf	Ihiege	Vegetable
Vegetable Leaf	Olopo	Vegetable
Medicinal Leaf	Ihienlo	Medicinal
Medicinal Leaf	Urehenmhen	Medicinal
Vegetable Leaf	Ebo-Okha	Vegetable
Medicinal Leaf	Ebisunghu	Medicinal
Medicinal Leaf	Oziza	Medicinal

Table 7: Medicinal Nuts found in the Study Area

MEDICINAL NUTS

ENGLISH NAME	LOCAL NAME	BELIEFS/USES
Medicinal Nut	Unien	Ritual/Medicinal
Medicinal Nut	Ighele	Ritual/Medicinal
Medicinal Nut	Ikposa	Ritual/Medicinal
Bitter Kola	Adu	Medicinal
Kola Nut	Ebhie	Ritual
Medicinal Nut	Akhue	Ritual/Medicine
Pear Variant	Osu	Medicinal

4.4 Some animals (fauna) found in Esan communities.

Virtually all the animal species, insects, reptiles and other creatures that are native to tropical rain forests, are found in all the forests and groves in Esan communities.

Table 8: Fauna found in the Study Area

S/N	ANIMAL/CREATURES	BELIEFS/USES
1	Lion	Strength of Culture
2	Elephant	For meat/income
3	Tiger	Strength of Culture
4	Deer	For meat/income
5	Bush pig	For meat/income
6	Antelopes	For meat/income
7	Monkey	For meat/income
8	Leopards	For meat/income
9	Fox	For meat/income
10	Tortoise	Ritual/Medicinal
11	Grass cutter	For meat/income
12	Rabbits	For meat/income
13	Porcupine	For meat/income
14	Squirrels	For meat/income
15	Boar	Ritual
16	Python	Ritual
17	Cobra	Ritual
18	Agama Lizard (Brown/Blue)	Ritual
19	Dove	Ritual
20	Vulture	Ritual
21	Parrot	Ritual/Medicinal

4.5 Current Medicinal uses of some flora and fauna found in Esan Communities

Table 9: Medical Values of some Flora and Fauna

S/N	FLORA AND FAUNA	MEDICINAL USES
1	Unien/Ighele (Nuts)	For treating/curing convulsion attack, bone fracture, skin disease, snake bite.
2	Parrot	Kept/harbored in homes to foretell misfortunes and omen.
3	Ikposa/Alanmhonkho (nut & herbs)	For treating/curing dysentery, diarrhea, pile, intestinal disorder, and ulcer.
4	Oziza, Ebe-Isunghu (herbs)	For treating/curing typhoid fever, intestinal disorder, bacterial Infectionse.t.c.
5	Osu (fruit/nut)	For the treatment of high blood pressure and diabetes.
6	Tortoise	As sacrifice for curing some strong ailments.
7	Cricket	As medicinal condiment to break barrenness.

Focus group discussion and interview also revealed that a number of herbs, nuts, fruits, roots, bark; found in the communities are used for the treatment of malaria, typhoid fever, dysentery, convulsion, diarrhea, high blood pressure, diabetes, barrenness, poor libido, poor erection in men, miscarriages, etc.

The study revealed that the people, their culture, beliefs and biodiversity are intricately interwoven and cannot be separated. Their daily lifestyle is almost completely dependent on the use

of biodiversity and patronage of sacred groves. This has ensured the upkeep and maintenance of sacred groves in the study area. The sacred groves remain a binding force on the people; their retainance observances and patronage remain their way of life and cultural identity.

4.6 Conclusion

Conservation of natural resources including biodiversity has been an integral part of several indigenous communities in and around forest areas world-wide. The concept and beliefs of sacred trees, forests or groves, are one of the best and enduring practices of biodiversity conservation.

This study is therefore intended to propose management and conservation as an alternative towards sustainability of forests around human settlements and also an attempt to explore the role of sacred groves in conservation and management of different ecosystem services.

4.7 Recommendations

Sacred groves have been protected since ages by traditional societies, with their socio-cultural and religious practices; thereby serving the purpose of in-situ biodiversity conservation. This should be encouraged by all and sundry. Governments at various levels should as a matter of policy establish forest reserves in every community, community and opinion leaders should designate part of their forests, as community proclaimed forest, devoid of any religious connotations, so that every member of the community, irrespective of religious affiliation can participate with interest in the conservation and management. Local government authorities should encourage individual and family private forestry; supply the local people both hybrid and local tree species especially the endangered ones to plant, nature conserve and manage. Tree planting and protection of endangered plants and animal species should be entrenched into the primary/secondary schools curricula at the local community level.

REFERENCES

- [1]. Anthwal, A. et al. (2010). Conserving Biodiversity through Traditional Beliefs in Sacred Groves in Uttarakhand Himalaya, India. *Resour Conserve Recy.* (54) 962-997.
- [2]. Anthwal, A. Sharma R.C, Sharma A (2006). Sacred Groves: Traditional way to Conserving Plant Diversity in Garhwal Himalaya, Uttaranchal. *The J.AmSci* 2 (2) 35-43.
- [3]. Banyo, A.D. et al. (2006). Taboo as a means of Plants and Animals Conservation in South-Western Nigeria: A Case Study of Ogbé River Basin. *World ApplSci J.* (1) 39-43.
- [4]. Bartkowski, B. (2017). Are Diverse Ecosystem more Valuable, Economic Value of Biodiversity and Ecosystem Service. *Ecosystem Service* (24) 50 – 57.
- [5]. Beak and Keay (1998). Forest Resources Study, Nigeria Revised Management Plan, Edo State, FORMECU, FMAWR, Abuja. pp 26.
- [6]. Bhagwat, S.A (2009). Ecosystem Services and Sacred Sites: Reconciling Material and Non-material values in Nature Conservation. *Environ Values* (18) 417 – 427.
- [7]. Bhandary, M.J at al. (2003). Sacred Groves of DakshinaKanada and Udipi Districts of Karnataka. *CurrSci* (85) 655 – 1656.
- [8]. Cardelus, C.L et al. (2013). A Preliminary Assessment of Ethiopian Sacred Grove Statue at the Landscape and Ecosystem Scales. *Divers* (5) 320 – 334.
- [9]. Chandran, M. D. S. et al. (1998). Sacred Groves of the Western Ghats of India, IBH Publishing Co. Ltd, New Delhi.
- [10]. Diaz, S. et al (2018). Assessing Nature's Contributions to People. *Science* (359) 270 – 282.
- [11]. Egharevba, J.U. (2005). A Short History of Benin, Benin City. Fortune and Temperence Publishers Co.
- [12]. Ehrlich, P.R and Ehrlich, A.E (1981). The Causes and Consequences of the disappearance of species. New York, Random House.
- [13]. Girigiri, B.K. (2010). Social Institutions and the Dynamics of Rural community, Port Harcourt, Nigeria. Amethyst and Colleagues Publishers.
- [14]. Jimoh, S.O (2001). Mangrove Degradation in Coaster Forest, East of Nigeria: Causes, Effects and Remedies for the Future, in L. Popoola, J.E. Abu and P. I. Oni, Proceedings of the 27th Annual Conference of Forestry Association of Nigeria (FAN) held in Abuja, Sept., 2001. pp27 – 38.
- [15]. Mark L.S.(2017) . A General Model for Biodiversity and its Value, in Garson, Plutynski and Sarkar, (2017), 69 – 85.
- [16]. Olajuwon, S. (1981). Elements of Rural Economics, Ibadan, Ibadan University Press.
- [17]. Oyedipe, F.P.A (1983). Adjustment to Resettlement, Ibadan, Ibadan University Press.
- [18]. Reuben, K.U (1981). Geographical Regions of Nigeria, Lagos, African University Press.