

Socio-Economic Contribution of Selected Sacred Groves in South-Western Nigeria

¹Oyelowo O. J., ²Aduradola A. M., ³Onadeko S. A., ⁴Agboola, D. A.

¹Department of Forest Conservation and Protection, Forestry Research Institute of Nigeria.

^{2,3}Department of Forestry and Wildlife Management, College of Environmental Resources Management, Federal University of Agriculture, Abeokuta, Nigeria.

⁴Department of Biological Sciences, College of Natural Sciences, Federal University of Agriculture, Abeokuta, Nigeria

Abstract: This study was conducted to assess the socio-economic contribution of sacred groves in south western Nigeria. The sacred groves are: Igbo-Ile, Igbo-Oba, Igbo-Olua, Igbo-Olodumare and Igbo-Gbopo. 150 copies of questionnaire were administered randomly to custodians (16), community heads (40) and residents (94) in the 5 communities for information on sacred trees, taboos, deities, festivals etc. All the data obtained were subjected to descriptive statistical analysis. The results revealed that 72.82% of the respondents were males while 27.18% were females. Majority of the respondents had Primary School Education (38.06%) compared to Secondary education (25.62%), Tertiary (19.78%), Adult education (7.56%). The study showed that the conservation of the sacred groves was largely carried out by 93% of the local people of which Christians were the majority. The communities of Igbo-Ile, Igbo-Gbopo, Igbo-Olodumare and Igbo-Oba sacred groves agreed that the groves served as source of food, income, energy, medicine and shelterbelt. Igbo-Olua sacred grove attached the benefits to the annual festival. Poverty was recognized as a major factor hindering the conservation of sacred groves in Nigeria. Socio-cultural and religious functions of the groves could boost the tourism sector if it is properly harnessed by the government.

Keywords: biodiversity, conservation, communities, sacred, groves, socio-economic.

1. INTRODUCTION

Nigeria covers an area of about 983,213km² and about 1/3 of this were classified as forest land. The tropical rainforest ecosystem in Nigeria is relatively small, occupying only 9.7% (95, 372km²) of country's land mass of 983,213km² (Adekunle, 2005). Despite the small extent of Nigeria's tropical rainforest ecosystem, forests perform a key role in providing vital services, which usually have no clear market value, notably global climate regulation and watershed protection (Onyekwelu *et al.*, 2008). The concern for conservation of residual forest is universal (FAO, 1993) is often heard these days and, in fact, the first step in this direction have already been taken, these include government reserved forests e.g. National parks, forest reserves, game reserves, biosphere reserve etc.

Socio-economic, ecological and conservation importance of sacred groves has been recognized and it has been emphasized that immediate conservation of them is must. Several approaches and options could be adopted to conserve these scared spaces. Local people have acquired unique knowledge and skills by adapting to the specific constraints and advantages of their fragile and sometimes in-hospitable environment. Through such knowledge, taboos and cultural ethics and norms, the local people ensured long- term sustainability and conservation of biodiversity (Ola- Adams, 1998).

In general, sacred forest is seen as a place populated by several types of supernatural beings, deities which may look human. They differ by their supernatural powers and immortality. It also believed that the spirits of the ancestors also live in the forest (Aumeeruddy and Bakels, 1992). According to Kokou (1997), a sacred grove is a forest in which villagers perform some rituals to communicate with the spirits and ancestors. In Benin, except for the mystic club forests (Oro, Kouvito and Zangbeto) which are wholly forbidden for the non-initiated, sacred groves provide many useful goods such

as hardwood and poles, fuelwood, medicine, vegetables and edible fruits. The fuel woods consist of old dead wood collected by women. Edible fruits are collected by everyone who goes into the forest (women, men, children, hunters) women often collect leaves for wrapping meals (leaves of *Thalia welwitschii*, *Cola gigantea*, e.g.) Roots, barks, fruits and leaves of many plants are used as source of medicine by many local people (Agbo *et al.*, 1993).

Natural areas that are held to be sacred by peoples are found globally. This is a widespread phenomenon to be found in almost every country. There are evidences of distinct belief systems around the globe and ethics related to conservation. Links between faiths and the conservation of land and water were found in every belief system examined by Dudley *et al.*, (2005). Several case studies of the definition of sacred grove have been highlighted (Okali and Amubode, 1995; Alabi (1992).

In the district of Kirinyaga (Kenya), there are at least 200 sacred groves of which the area varies between 0.1 and 1.3ha, preserved by the Kikuyu (Brokensha and Castro, 1988). In Ghana, there are at least 1,430 sacred groves (Oteng – Yeboah, 1996)

According to Ovied and Sally, 2005, generally, two types of sacred natural sites can be found in the world: those established by indigenous and traditional people in the context of their spiritual beliefs and customary institutions, and those created by institutionalized religions or faiths. IUCN focuses on areas that are primarily natural, as they link to its mission, but generally supports the cause of conserving both monumental and natural sacred sites as valuable elements of human cultures. In accordance with their spiritual beliefs, many traditional communities throughout the world have given a special status to natural sites such as mountains, volcanoes, rivers, lakes, springs, caves, forest groves, ponds, a coastal waters entire island. Many of these have been set aside as sacred places. Traditional religious and cultural practices thus contributed greatly to restricting and controlling the utilization of the resources of these very representative land areas (Godson, 1998). He further stated that the strength of the traditional rules and laws enshrined in the taboos, beliefs etc., which in the past served as very effective tools in conservation of biodiversity have thus with time substantially eroded from the minds and culture of the people resulting in the encroachment and degradation of the once well guarded groves, ecologically sensitive and other protected areas.

Okali and Amubode (1995) reported the existence of three sacred groves (Igbo Itamafo, Igbo- orisa and Orisagogoro) at Oboto, Ondo state, Nigeria used as shrine, burial ground and religious practices. In many villages in Africa, there is often a huge tree or a small forest rising up in the boundary savanna in which local people perform their cult. Though the sacred groves in Nigeria are biological heritage and a system that has helped to preserve the representative genetic resources existing in the surrounding regions for generations, they are declining in numbers and size rapidly, due to modernization and urbanization. This paper x-rays the significance of recognizing and conserving the remaining sacred groves for the development of economy.

2. MATERIALS AND METHODS

2.1 Study Area:

The study area is part of the tropical rainforest ecosystem occurring in south west Nigeria. It comprises the following states: Lagos, Ogun, Oyo, Osun, Ekiti and Ondo (Fig 1). The ecological zone is a continuous belt around the world between Lat. 24°S and 24°N and Longitude 10°E and 20°W. In southwest Nigeria, tropical rainforest begins a few kilometers in land along the coastal vegetation for the derived and Guinea savanna vegetation. It is 300km wide in its widest area (Okojie, 1994). There is a distinct dry and rainy seasons, having an average annual rainfall and temperature of 1489mm and 26.5°C respectively. The zone has a high density of human population with agriculture as primary occupation of the people. The zone is known for the cultivation of maize, cassava, vegetables, yam, oil palm etc. (Sowunmi and Akintola, 2010)

2.2 Selection of Study Areas:

Five sacred groves were purposely selected from South-Western states.

Table 1: Sacred Groves and Their Location Coordinates

Sacred Groves	Town	Local Government Area	State	Latitude	Longitude
Igbo-Ile	Ibere	Ogo Oluwa	Oyo	7.9333333°	4.2°
Igbo-Oba	Oba Ile	Olorunda	Osun	7° 54'	4° 35'
Igbo-Olua	Igbare Oke	Ifedore	Ondo	7°24'0 ¹¹	5°3'0 ¹¹
Igbo-Olodumare	Oke Igbo	Oke Igbo	Ondo	7° 12' 0 ¹¹	3° 18' 0 ¹¹
Igbo-Gbopo	Aye	Ejigbo	Osun	7.9166667°	4.25°



Fig 1: Map of South-western states, Nigeria, showing the location of the sacred groves with maps of Africa and Nigeria inset.

2.3 Data Collection and Analysis:

This studies the social and cultural constructions of human groups. Questionnaires were administered to villages or communities selected for enumeration using simple random sampling. 150 questionnaires were distributed and administered randomly through the meetings held with village heads, custodians and the people. During field visits, sacred groves were enumerated and information on sacred trees, taboos, deities, festivals and cultural aspect etc. through personal contacts and by interviewing villagers. All the data obtained from the structured questionnaire were subjected to descriptive statistical analysis.

Firstly, a qualitative survey was conducted in the sacred grove communities on the basis of interviews with the religious leader (priests of the grove, Christian, Muslim) and villagers. Secondly, a quantitative survey was carried out subsequently in order to better appreciate the social- cultural importance of the groves. This is in form of frequency and percentage distribution. All studies were carried out with the prior consent of the local communities concerned- in particular, the consent of village chiefs, community elders and priests, who have a wealth of indigenous ecological knowledge.

3. RESULTS AND DISCUSSION

This concept of sacred groves is particularly strong among indigenous peoples. The study of faith in plants among the folk is a fascinating area with immense possibilities of insight into the cause of these associations. The practices were conducted to investigate the increasing concerns about the status and degradation of the sacred groves, to gather information about their perception of the grove, its significance and impact on their lives and also their intimate spiritual relationships. Table 2 showed the demographic structure of the 5 sacred groves. The respondents were 72.82% males and 27.18% females. This could be attributed to the availability of men to be interviewed. Men were more available to be interviewed than the women. Dafni (2007) reported in his study that women were reluctant to be interviewed than men. Christianity had the highest percentage of 47.98 compared with Muslim (31.04%) and Traditional (11.18%). This could be attributed to the increase in the change to Western religion. Western religion had higher percentage than the traditional religion. This supported the report of Adomako and Adomako (1997) that in Guako sacred forest, Ghana, religion background of respondents showed that Christianity (64%) had the highest percentage compared to Islam (20%) and Animism (16%). This suggested that members of the community who had religious interest in the conservation of the sacred groves to worship gods are in the minority since Christianity (especially) regards the worship of ancestral gods as idolatry. In a similar research carried out in Oboto village, Nigeria, Okali and Amubode (1995) reported that about 82% were Christians, 13.5% Muslims and 4.5% traditionalists. The traditional beliefs and practices are seriously threatened by Christian evangelistic activities. This might weaken resource conservation of these sacred groves.

Majority of the respondents had Primary School Education (38.06%) compared to Secondary education (25.62%), Tertiary (19.78%), Adult education (7.56%). This could be attributed to low level of education in the rural areas. Only 45% of the women in Oboto village had formal primary education, while 9% had Secondary education (Okali and Amubode, 1995). Farming (50.06%) was the major occupation of the respondents compared with other occupations. This could be attributed to the land availability among rural dwellers or as a source of income. Traditionally, in communities in Nigeria, land is owned as common, communal, clan or extended family property freely used by those owning it. Rural people have access to good land to farm. Okali and Amubode (1995) also reported that farming is the predominant occupation of both men and women in Oboto village, Nigeria and this accounted for about 70% of it devoted to cocoa, kolanut and oil palm as cash crop dominated by men, the rest goes for food crops, dominated by women. The findings also confirmed the report of Agbo *et al.* (1993) that traditional farming methods have developed through accumulated experience over a long period borne out of inductive thinking, and this is to ensure survival from season to season but also to ensure the long term productivity of the soil. About 95.92% of the respondents subscribed that they were familiar with the sacred groves while the remaining 4.08% were not familiar with the grove. This could be attributed to the transfer of knowledge to the next generation within the communities. Also, it could be attributed to the economic importance of the groves to the communities. The transfer of knowledge to the next generation was mainly by the grandparents in the family, in school, the children were made aware about the importance of the sacred groves (Ishani and William, 2009). Malhotra *et al.* (1998) attributed the awareness of sacred groves among the communities based on economic benefits derived from the groves. He further stated that good rainfall, good agricultural production, well-being of crops and animals were believed to be the reward for the protection of the sacred groves.

Local people, community leader, custodians share the responsibility of protecting the sacred groves (Fig. 1). About 93.3% respondents attached the protection of the grove to local people, followed by custodians (6.7%). In all the communities interviewed, the protection of the sacred groves fell largely on local people. This could be attributed to the fact that, local people see the groves as their heritage and protect it by not going against taboos. Most of Malshegu's inhabitants worship the ancestral kpalevorgu, in addition to their individual household gods (Dorm –Adzobu *et al.*, 1995). Various communities in India follow nature worship based on the premise that all creations of nature have to be protected (Ganesan *et al.* 2007). In Afghanistan, after advent of Islam, the creation and conservation of sacred grove became a part of historical and geographical tradition of the rural people (Mohamed, 1998). The positive role of sacred groves in the socio-economic and cultural lives of many rural folks in Ghana has been possible because of the collective efforts of people to protect them (Michaloud and Durry 1998). However, government is responsible for the protection and management of Igbo-Olodumare. This could be attributed to the official recognition given by the Ondo state government. Gongorin (1998) reported that Mongolia sacred groves are not protected by the government but few sacred places which have been officially recognized as sacred sites are protected by the government. Gadgil and Vartak (1981) have documented 223 such groves. Legally all sacred groves in Meghalaya are under the control of District councils. (Tiwari *et al.*, 1998)

In all the sacred groves, maximum percentage of respondents attached the function of sacred groves to spiritual purposes, with the exception of Igbo –Gbopo where 53.3% respondents regarded the grove for its environmental purposes (Fig. 2). The inhabitants of the villages could believe in the sanctity of the groves and deities and this could make them aware of the spiritual purpose of groves (Dorm-Adzbu and Ampadu-Agyer, 1995). Local inhabitants recognize that trees have an economic value (especially the dawadawa and shea –nut trees) and a medicinal value as well as providing shade and wood for building houses and making farm implements; and that they contribute to protecting the head waters or rivers and streams; to the collection of wild honey; the control of soil erosion; and the protection of buildings against storms. The environmental importance attached to the grove by Aye community where Igbo -Gbopo is located could be attributed to the roles of the grove in providing more dependable source of water for the community. *Yemo* River takes its source from the grove. Aye community harvested the trees along the river owing to the neglect of the worshipping River *Yemo*, despite the immediate past king enforcement of the laws against the removal of trees along River *Yemo*. At the demise of the king, people started cutting trees, causing the flow of River *Yemo* to reduce drastically during the dry season. It took a long time before the community woke up to these destructive realities. The present king mandated total shift from farming along the river. It is evident that, one of the important ecological roles of this grove is provision of water for the organisms living in an around the sacred grove (Puspangadan *et al.*, 1998). In addition, transpiration from sacred grove the vegetation would increase atmospheric humidity and reduce temperature in the immediate vicinity and produce a more favourable microclimate for many organisms (Khiewtam and Ramakrishnan, 1989).

Hunting was valued in Igbo-Ile and Igbo-Gbopo sacred groves. Higher percentage of 83.3% entered the grove for hunting (Fig. 3). Rituals and worshiping of gods faded away when the community started embracing western religion. The trees and other forms of plant are protected till date. Hunting (83.3%), firewood collection (6.7%) i.e. the dead woods were allowed in the grove. The head of the community pointed out that the grove abhorred the relics of the village. The community was located where the grove was established, it was the Fulani war that displaced them to the present location, hence there was need to protect the area as the community heritage. The relics of the buildings are still present in Igbo-Ile sacred grove. Okali and Amubode (1995) also reported that hunting is men's work, done during the dry season (October-March) which is declared the open season. It takes place mainly, but not exclusively, in the Orisagogoro forest in Oboto village. This statement also agreed with Aye community where Igbo-Gbopo is located. Rituals and worship receive no more attention, and the people are allowed to hunt in the sacred grove. Festivals and sacrifices were regular practices in Igbo-Oba, and Igbo-Olua sacred groves. In these groves, rituals and festivals were performed to specific deities. During the Igbo-Olua festival in Igbara-Oke, a big cow is made for the sacrifices. The festival involved dancing, appeasing and praying. Igbo-Oba sacred grove in Oba-Ile also witnessed annual sacrifice and rituals. This could be attributed to the fact that deities are believed to look after the well-being of the people. According to Malhotra and Das, (1997), people take vows for wish-fulfillment when where is a crisis, particularly bearing on health, and offering mostly of terracotta of animals, birds, human, etc. are made. In Igbo-Ile and Igbo-Oba sacred groves, broken pots were found which showed the evidence of worship and sacrifice. Just to mention a few of illustration: Wath (1960) mentioned that once a year on the occasion of Deeparali, offerings of food and liquor are made in groves among the Bhils of Ratanmal; Vidarthi and Rai (1977) reported that different tribes of Bihar celebrate their major festivals at the sacred groves; Fernandes (1993) stressed on the role of sacred groves in the socialization of the youth among the tribes of Chhotanagpur. Troisi (1978) mentioned that the association of a village with jaherthan expresses the unity of the group.

Fuelwood i.e dead woods were part of the reasons people entered Igbo-Ile sacred grove. This is certainly true in many sacred groves found across the world. Gadgil and Vartak (1976), Roy Burman (1995) and Godbole *et al.* (1998) reported such groves in the Western Ghats of Maharashtra. Malhotra *et al.* (1998) reported the existence of numerous groves in Kerala from which plants and animals are not harvested, the same goes to Igbo-Olua, Igbo-Olodumare and Igbo –Oba. The groves from where fuelwood is extracted, local communities derive certain direct economic benefits from the sacred groves.

Sacred groves are the good source of a variety of medicinal plants, fruits, fodder, and fuelwood among others. The respondents mentioned some of their benefits from the groves. The communities of Igbo-Ile, Igbo-Gbopo and Igbo-Oba sacred groves agreed that the groves served as a source of food, income and medicine. The roles and benefits of the sacred groves in the conservation of the regional medicinal plant have been emphasized in several studies from different part of world. Bhakat and Pandit (2003) recorded from the Chilkigarh sacred grove in Midanapore district (West Bengal) 105

medicinal plant species. A total of 120 medicinal plants widely used for the treatment of various ailments were reported from four sacred groves of Manipur (Khumbongmayum *et al.* 2005). Conservation, utilization and assessment of the implications of exploitation of these species have become an important task (Dhar 2002, Sumit and Dhar 2002). Igbara – Oke, where Igbo –Olua sacred grove was located attached the benefits to the annual festival which brings people together, however transforms the economy of the community. The communities of Ibere, where Igbo –Ile is located reported that, the sacred grove prevents wind havoc, the presence of the grove also bring rain, this is not spiritual to them, they belief in the role of trees in evapotranspiration.

Objects of worship vary from a sacred grove to other. Trees are the objects of worship in Igbo-Ile, Igbo-Oba and Igbo-Olua sacred groves. Trees and statues are objects of worships and inspiration in Igbo-Olodumare, although there were no sacrifices, but to be inspired in the sacred grove. River is an object of worship in Igbo-Gbopo (Fig. 4). Okali and Amubode (1995) reported that Igbo-Orisa bordering the stream is protected as a watershed, and fishing is prohibited, so as to ensure the stream does not dry –up from siltation and that water is clean for domestic use.

Table 2: Socio-economic Characteristics of Respondents in all the Sacred Grove

Category	Variables	Igbo Ile		Igbo Oba		Igbo Olua		Igbo Olodumare		Igbo Gbopo	
		Freq (n=3)	%	Freq (n=30)	%	Freq (n=30)	%	Freq (n=27)	%	Freq (n=30)	%
Sex	Male	23	76.7	21	70.0	24	80.0	20	74.1	19	63.3
	Female	7	23.3	9	30.0	6	20.0	7	25.9	11	36.7
Marital status	Married	18	60.0	11	36.7	15	50.0	10	37.0	19	63.3
	Single	10	33.3	11	36.7	10	33.3	15	55.6	7	23.3
	Others	2	6.7	4	13.3	5	16.7	2	7.4	4	13.3
Religion	Christianity	14	46.7	10	33.3	13	43.3	9	33.3	25	83.3
	Muslim	12	40.0	12	40.0	12	40.0	5	18.5	5	16.7
	Traditional	0	0	4	13.3	5	16.7	7	25.9	0	0
	Others	4	13.3	4	13.3	0	0	6	22.2	0	0
Edu. Status	Primary	15	50.0	10	33.3	15	50.0	10	37.0	6	20.0
	Second	9	30.0	6	20.0	7	23.3	4	14.8	12	40.0
	Tertiary	2	6.7	9	30.0	5	16.7	6	22.2	7	23.3
	Adult edu	3	10.0	2	6.7	1	3.3	3	11.1	2	6.7
	Quranic	1	3.3	3	10.0	1	3.3	3	11.1	2	6.7
	No formal	0	0	0	0	1	3.3	1	3.7	1	3.3
Occupation	Farming	24	80.0	7	23.3	13	43.3	10	37.0	20	66.7
	Trading	5	16.7	10	33.3	9	30.0	9	33.3	2	6.7
	Civil servant	0	0	8	26.7	1	3.3	6	22.2	0	0
	Artisan	0	0	4	13.3	5	16.7	2	7.4	6	20.0
	Student	1	3.3	1	3.3	2	6.7	0	0	2	6.7

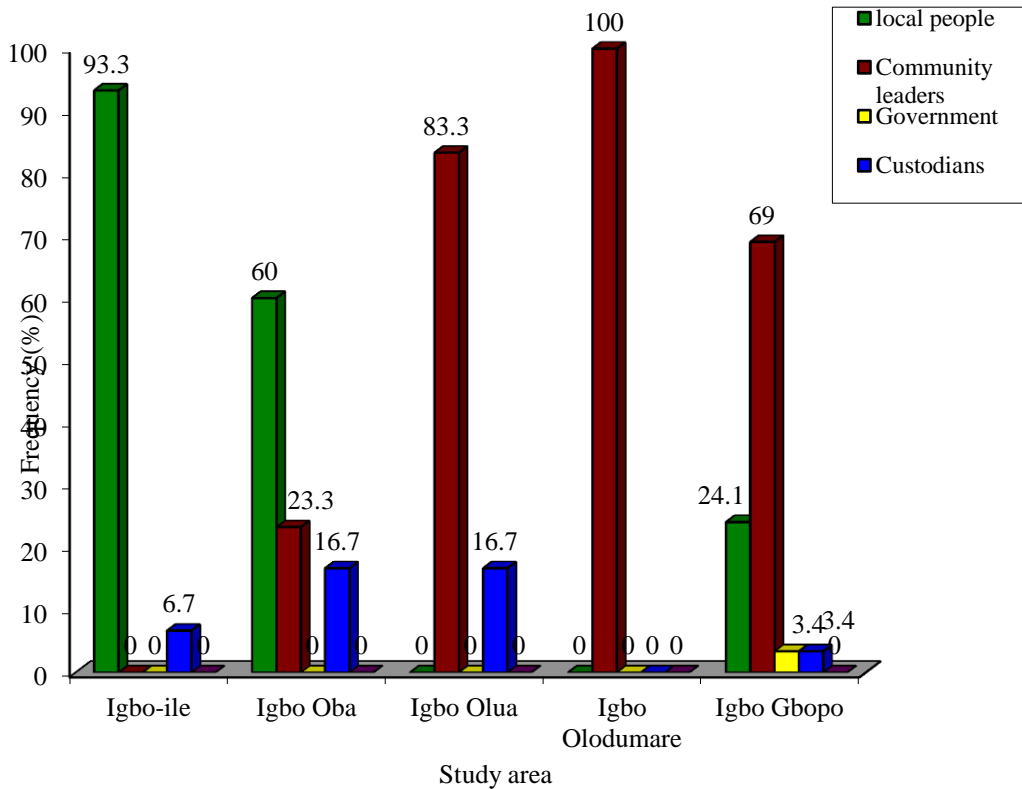


Fig. 1: Responsibilities of Stakeholders in Sacred grove Conservation

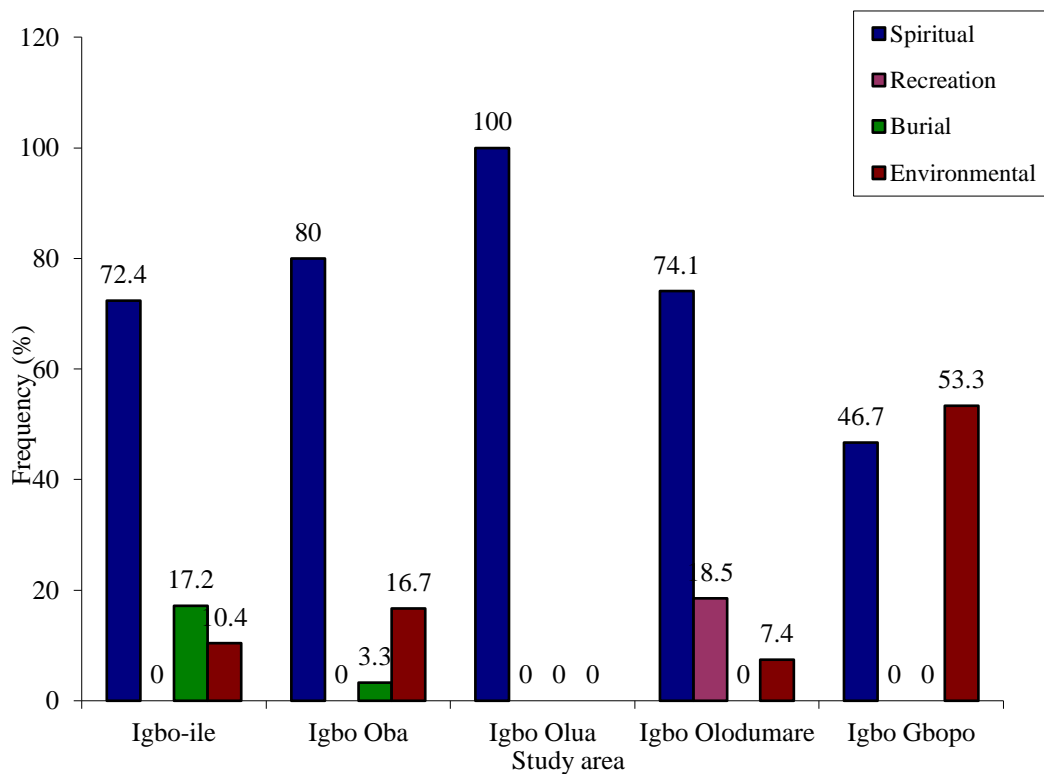


Fig. 2: Functions of the Sacred Groves to the Communities

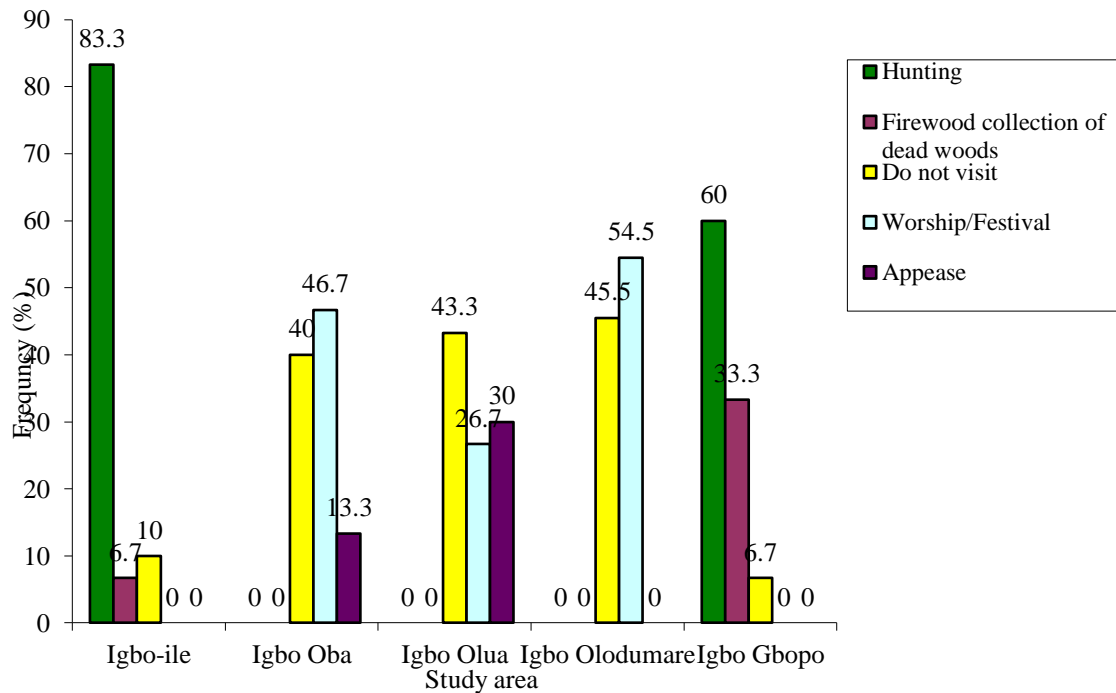


Fig. 3: Purpose of Visiting the Groves

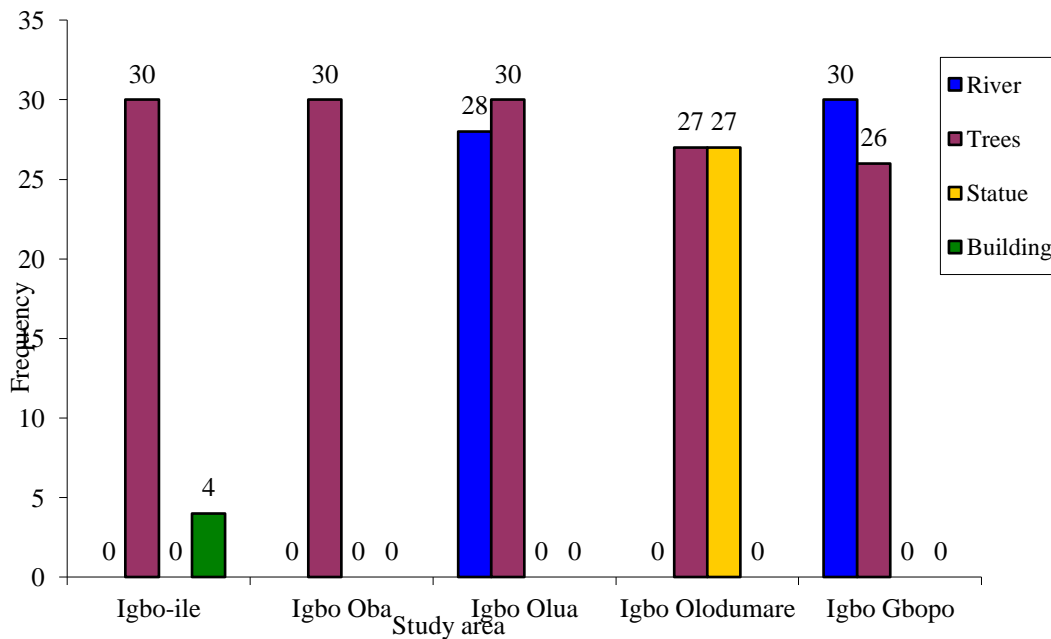


Fig. 4: Sacred Object/Object of Worship in the Sacred Groves

4. CONCLUSION

Poverty is one of the unfortunate factors that hinder the conservation of sacred grove, the village people living nearby the sacred groves are poor and so they depend on the grove to meet their vital domestic necessities, such as fuel wood, vegetables, medicinal plants e. t. c. Sacred groves have important socio –cultural functions, in addition to the religious functions. This could boost the tourism sector if it is properly harnessed by the government.

REFERENCES

- [1] Adekunle, V.A.J (2005). Trend in forest conservation and biodiversity conservation and biodiversity conservation in Nigeria. In okoko E, Adekunle, V.A.J, Adeduntan S.A. (eds). Environmental sustainability and conservation in Nigeria. Environmental conservation research team Federal University of Technology Akure, pp 82- 90.
- [2] Adomako E. E. and Adomako J. K. (1997). Conservation by Tradition: The case of the Guako sacred grove. Biodiversity Conservation: Traditional Knowledge and Modern Concepts. Proceedings of the third UNESCO MAB Regional Seminar on Biosphere Reserves for Biodiversity Conservation and Sustainable Development In: Anglophone Africa (BRAAF) Cape Coast (Eds. Amlalo D. S., Atsiatorne, L. O., Carl Fiat). Pp 7 – 15.
- [3] Agbo, V.; Sokpon, N.; Hough, J. and West, C.P. (1993). Population environment dynamics in a constrained-ecosystem in Northern Benin. In: Gayl D. Ness: William, D., Drake and Steven R. Brechin eds. Population – environmental dynamics. Idea and observations. The University of Michigan Press: 283-300.
- [4] Alabi, K.A (1992). Traditional Forest Conservation in practice: A case study of Ikire-Ile in Ola – Oluwa Local Government. M.Sc. Degree Dissertation, University of Ibadan, Ibadan; 82pp
- [5] Aumeerudd, Y. and Barkels, J. (1992). Management of Sacred forest in the Kerinci Valley, Central Sumatra: an example of conservation of biological diversity and its cultural basis. Proceedings of 3rd international congress of ethnobiology. Mexico City, Nov. 1992.
- [6] Brokensha, D. and Castro, A.H.D. (1988). Common property resources. Document presente a la consultation d'experts sur la foret et la production/securite dimentaire, 15-20 fevrier. Rome, FAO: 19-21.
- [7] Dafni A. (2007). Rituals, Ceremonies and Customs related to Sacred trees with a Special reference to the Middle East. Journal of Ethnobiology and Ethnomedicine, 3.28.
- [8] Dhar, U. (2002). Conservation implications of plant endemism in high-altitude Himalaya. Current Science 82(2): 141-148.
- [9] Dorm-Adzobu, Clement and Peter G. Veit (1995). 'Religious Beliefs and Environmental Protection: The Malshegu Sacred Grove in Northern Ghana.' Nairobi, Kenya: World Resources Institute.
- [10] Dorm-Adzorbu C, Ampadu-Agyei O (1995). The Malshegu sacred grove, Ghana. In Sigot A, Thrupp LA, Green J (eds) Towards Common Ground: Gender and Natural Resource Management in Africa, ACTS Press, Nairobi, pp. 49-64.
- [11] FAO, 1993. Forest Resources Assessment (1990): Tropical country. FAO Forestry paper 112. FAO Rome.
- [12] Gadgil, M. and Vartak, V.D. (1976). Sacred groves in Western Ghats in India, Economic Botany, 30:152-160.
- [13] Gadgil, M. and Vartak, V.D. (1976). Sacred groves in Western Ghats in India, Economic Botany, 30:152-160.
- [14] Ganesan, S., K.R. Ganesh and R. Sekar, (2007). Integrated management of stem rot disease (*Sclerotium rolfsii*) of groundnut (*Arachis hypogaea* L.) using *Rhizobium* and *Trichoderma harzianum* (ITCC-4572). Turk. J. Agric. For., 31: 103-108.
- [15] Godbole, A., Watve, A., Prabhu, S. and Sarnaik, J. (1998). Role of sacred groves in biodiversity conservation with local people's participation: , A case .study from Ratnagiri district, Maharashtra, In: Ramakrishnan, PS., Saxena, K.G, and Chandrashekara, U.M. (eds.) Conserving the Sacred for Biodiversity Management, Oxford and IBH Publishing Co., New Delhi, pp. 233-46.
- [16] Gongorin, U. (1998). Sacred groves in Mongolia: Country report. Pp 189-191.
- [17] Islani, P. and Williams B. (2009). A socio –Ecological Study of Sacred Groves and Memorial Parks: Cases from USA and India. International Journal of Civil and Environmental Engineering 1: 1 2009.
- [18] Khiewtam, R.S. and Ramakrishnan, P. S. (1989). Socio-cultural studies of the sacred groves at Charrapunji and adjoining areas in north-eastern India, Man in India, 69; 64-71.

- [19] Khumbongmayum, A.D., Khan, M.L. and Tripathi, R.S. (2005). Survival and growth of seedlings of a few tree species in the four sacred groves of Manipur, northeast India. *Current Science* 88(11): 1781-1788.
- [20] Kokou, K. (1997). Gestion d'îlots de forest naturelles par les collectivites villageoises au Togo. Réseau de communication pour la promotion des forest et des arbres tropicaux. Special atelier de Torodi, Niger: 49-52.
- [21] Malhotra, K.C. and Das K. (1997). Interface between faunal biodiversity and cultural heritage in south-west Bengal, in India, In: Fujiki, N. and Macer, R.J. (eds.) *Bioethics in Asia*, Eubois Ethics Institute, Japan, pp. 346-51.
- [22] Malhotra, K.C., Hemam, N.S. Stanley, S. and Das, K (1998). Cultural and Ecological Value of Natural Sacred Biodiversity Sites in Orissa, India: Threats and Opportunities, *Proceeding: Volume of International Symposium on Natural Sacred Sites Cultural Diversity and Biological Diversity*, UNESCO, Paris.
- [23] Michaloud, G. and Dury, S. (1998). Sacred trees, groves, landscapes and related cultural situations may contribute to conservation and management in Africa. Pages 129-143, In: Ramakrishnan, P.S., Saxena, K.G. and Chandrashekara, U.M. (Editors)
- [24] Mohamed, Z. (1998). A note on sacred groves in Afghanistan. In: Ramakrishnan, P.S., Saxena, K.G. and Chandrashekara, U.M. (Editors) *Conserving the sacred for Biodiversity Management*. UNESCO and Oxford-IBH Publishing, New Delhi. Pp 151-152
- [25] Okali, D.U.U. and Amubode, F.O. (1995). Resources conservation in Oboto, Nigeria. In: *Towards Common Ground – Gender and Natural Resources Management in Africa*. Pp. 27-47.
- [26] Okojie, J.A. (1994). Role of the Forestry sub-sector in the Nigerian Economy. Paper presented at the workshop on Forest Policies and Values. Agricultural and Rural Management Training Institute (ARMTI). Ilorin, Kwara State, Nigeria. 4pp.
- [27] Ola- Adams, B.A. (1998). Forestry and protected area – A natural twin partner in biodiversity and habitat conservation. *Proceedings: partnership in sustainable utilization and conservation of biodiversity in protected areas*, BRAAF seminar pp65-74.
- [28] Onyekwelu, J.C. Mosandl, R. and Stimm, B., (2008). Tree species diversity and Soil status of primary and degraded tropical rainforest ecosystems in south – Western Nigeria. *Journal of tropical forest science* 20 (3): 193-204
- [29] Oteng-Yeboah, A.A. (1996). Biodiversity in three traditional groves in the Guinea savannah, Ghana. In L.J.G. van der maesen: X.M. van der Burgt et. J.M. van der Medenback de Rooy (eds.). *The biodiversity of African plants*. Kluwer Academic Publishers. Printed in the Netherlands: 188-197.
- [30] Pushpangadan, P., Rajendraprasad, M. and Krishnan, RN. (1998). *Sacred groves of Kerala : A synthesis on the state of art of knowledge*, In: Ramakrishnan, P.S., Saxena, K.G. and Chandrashekara, U.M.(eds.) *Conserving the Sacred for Rio-diversity Management*, Oxford and IBH Publishing Co., New Delhi, pp. 193-210.
- [31] Roy Burman, J.J. (1995). The dynamics of sacred groves. I. *Human Ecol.* 6: 245-254.
- [32] Sowunmi, F.A and Akintola, J.O. (2010). Effect of Climatic Variability on Maize Production in Nigeria. *Research Journal of Environmental and Earth Sciences* 2(1): 19-30
- [33] Sumit, M. and Dhar, U. (2002). Conservation and utilization of *Arnebia benthamii* (Wall. Ex G. Don) Johnston- a high value Himalayan medicinal plant. *Current Science* 83 (4): 484-488. Sustainable Livelihood, Proceedings of (Check labtop).
- [34] Tiwari, U.K., Bank S.K. and Tripathi, R. (1998). Sacred groves of Meghalaya, In: Ramakrishnan, P.S., Saxena, K.G. and Chandrashekara, U.M. (eds.) *Conserving the Sacred for Biodiversity Management*, Oxford and IBH Publishing Co., New Delhi, pp. 253-62.
- [35] Troisi, J. (1978). *Tribal Religion: Religion and Practice among the Santhals*, Manohar Publishers, New Delhi.
- [36] Vidyarthi, L.P. and Rai, B.K. (1977). *Tribal Culture of India*, Concept Publishers, Delhi.