

Folk-lore and Traditional Beliefs; Relics of the Past or Crucial Vehicles in Biodiversity Conservation: A case study of Bachama people of Numan, Adamawa State

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Abstract: One of the biggest challenges of conserving biodiversity today is the need to satisfy the yearnings of all stakeholders. However, conservation ethics and blueprints are based on the outcomes of scientific inquiry without recourse to traditional indigenous knowledge, values and beliefs. We identified key traditional beliefs and folklore with conservation implications in Bachamma community, Numan Local Government of Adamawa State-North East Nigeria. The goal was to explore the possibility of complementing the effort of western advocacy for the conservation of nature by incorporating traditional views and practices that are beneficial to species and biodiversity conservation. Structured questionnaires/interviews were employed to identify cultural practices; traditional laws and taboos of the Bachama people and how these laws and taboos have helped in management and protection of biodiversity. Our findings suggest that most cultural beliefs and practices are in sync with modern conservation principles. Knowledge of these beliefs is widespread in rural adult population than among urban settlers across different age groups. We suggest incorporation of traditional beliefs and relevant folk-lore into the educational curriculum to ensure their preservation and inculcation by young people - future stewards of biodiversity.

Keywords: Biodiversity, Folklore, Species conservation, Beliefs

INTRODUCTION

Species Conservation - the preservation and sustainable use of species and associated resources is not only crucial but an unavoidable approach to ensuring sustainable development, healthy environment and the protection of nature's vast and diverse resources. One of the biggest challenges of conservation today is the need to incorporate diverse interest (the needs of local people, economist, policy makers and conservation biologist). This conflict of interest has placed a high demand on conservation practitioners to balance their "intrinsic value" approach with the "utilitarian" approach of economist and sometimes the locals. These is perhaps one of the reasons why most successful conservation program had to first consider the needs and values of the local people in their conservation blueprint (Saka, Emmanuel, Abideen, Emeka and Adesoji 2012).

Many studies in Africa suggest that incorporating cultural norms and taboos into conservation programs may serve as a morale boost to local communities to conserve natural resources (Tengo, Johannsson, Rakotondrasoa, Lundberg, Andriamaherilala, 2007; Jones, Andriamarivololona., and Hockley. 2008; Rabearivony, Fanameha, Mampiandra, and Thorstrom, 2008). One common view among these scholars was the emphasis on the relevance of taboos and cultural laws in the continued existence of forest biodiversity. In Ghana, studies have shown how clans protect their natural resources through the use of taboos (Abayie- Boatén, 1998; Hens 2006; Sarfo-Mensah & Oduro, 2007; Kobina & Kofi 2009; Nganje 2009). Similarly, in Nigeria, Bassey & Kanung (1996a); Bassey & Kanung (1996); Banjo et al. (2006); Obasohan (2008); and Akindele (2010),

acknowledge the relevance of folklore and taboos in protecting and conserving biodiversity.

Folklore is a group of oriented and tradition-based creation of a group or individuals reflecting the expectations of the community as an adequate expression of its cultural and social identity, its standards and values are transmitted orally, by imitation or by other means. Its forms include among others; language, literature, music, dance, games, mythology, rituals, customs, handicrafts, architecture and arts. Folklore is socially based and communally owned, as suggested by the UNESCO definition. Folklore and traditional belief systems have a considerable effect on environmental attitudes/consciousness. (Wienecke, 2005; Saka et al., 2012).

It is common knowledge in Nigeria that the post-colonial law enforcement is increasingly becoming ineffective in wildlife conservation. Thus, there is need to review traditional values that are pro-conservation with a view to incorporating same into the nation's education curriculum and future conservation action plans. Although man has been viewed as the proximate cause of biodiversity loss, humans and their needs cannot be excluded if any conservation plan has to succeed. Therefore, the need to effectively manage humans and their utilitarian excesses has become a major concern for conservation biologists. How individuals perceive species will determine how they will treat them (Sekhar, 2003; Martin, et al., 2016). It is imperative therefore, that natural resource managers engage local people at the planning stage of their conservation action blueprint.

This all-inclusive approach will create a sense of ownership among the locals and would ensure that diverse interests are considered (Saka, et al., 2012).

We focused on identifying conservation centered folklore, taboos and beliefs with conservation implications and how these local traditional practices and beliefs could complement modern scientific approach to biodiversity conservation. We underscored the level of appreciation and knowledge of traditional beliefs with regards to species conservation among the Bachama people in urban and rural populations. We also assessed whether these perceptions were helpful or detrimental to species wellbeing and conservation.

We investigated the attitudes and perceptions of the people towards conservation generally and more specifically, some common animals and plant species to determine which species was the most persecuted or protected. Our findings also shed light on how different human perceptions cause variations in the attitudes of people towards conservation of species. Study results will be useful to natural resource policy makers, who may need to integrate the needs of a variety of natural resource users.

METHODOLOGY

Study site

The study was conducted in Numan Local Government Area (LGA) of Adamawa State, North-eastern Nigeria. The study focused on the Bachama people within and around Numan town of Numan LGA. Two sets of populations were considered- the rural and the urban. The study focused on the local community living on the outskirts or near Numan town namely Kikon, Dong, Waduku, Bolki, Yanga, Mbolong. For the urban area, the focus was on the communities within Numan town. The population of Numan LGA is estimated to be 105,830 according to the National Population Commission of Nigeria (2014). Numan town is located along latitude 9°27'12.95"N and longitude of 12°1'54.65"E.

Target population

The focus was on the Bachama people of Numan LGA who were 15yrs and above. We focused on two population sets; the rural and urban populations. The urban population comprised people inhabiting areas within Numan town, while those on the outskirts or around Numan town were considered rural.

Sampling Protocol

Data was generated through simple random sampling (Asena, 2004). The study areas were divided into sampling units based on administrative boundaries and study units (locations within the study area) were

selected randomly. Individuals within the sampling units were selected randomly. The total sample size was 200 of which 100 was rural and 100 urban. From the study units in rural areas, individuals were selected randomly starting from the community center and extending outwards in all directions. Individuals from homesteads, schools, shops, farms and along the roads were sampled. From the urban population, individuals were selected randomly in and around Numan town. Individuals who were willing to participate were sampled and interviewed. These included; individuals in shops, streets and offices.

We conducted a reconnaissance survey to check the relevance of questions, the suitability and completeness of the expected data; and development of logistic plan of action. It revealed possible pitfalls and prospects and generally assisted in the final design of the questionnaires and key objectives of the study.

Data Collection

Primary data was collected using structured questionnaires and direct communication through one on-one interview with notable custodians (heads of chiefdoms, traditional medicine practitioners and hunters) of history, folk-lore and core traditionalist among the rural/urban population, while secondary information was sourced from reports and published/unpublished materials.

Structured questionnaire

A structured questionnaire was administered to individuals chosen randomly from the target population units (Rural and Urban). Information gathered included; cultural values, taboos, and folklore known to respondents, respondents general knowledge or disposition towards species conservation.

For Instance, to determine species that were most protected (conserved) and those that were most persecuted; we identified the respondents disposition towards the species; and the forces that drive these dispositions; such as: animosity, fear, worship, awe, utilitarian or intrinsic values attached to some species. The information was analyzed and categorized into whether the actions or perceptions will support conservation of the species or expose the species to direct or indirect persecution. For example, fear of snakes will expose snakes to direct attack and persecution. Species that serve a particular purpose food or medicine may become over harvested, hence persecuted. The species were derived from the most mentioned animals and plants among the respondents. A few species (snakes, lions, vultures) were included in the questionnaire to extract the respondent's views. These set of species are also globally or locally extinct in the wild and we sought to establish possible forces that underpin the present conservation status of these species.

Data analysis and presentation

Data was analyzed using SPSS (Statistical Package for Social Sciences version 15.0 (SPSS, 2010), and Microsoft excel spreadsheet. Descriptive statistics was employed, with result output presented as percentages, counts and averages.

RESULTS

Results suggest that under local beliefs and folk-lore, more plants are protected on average than animals. Out of 14 common animals reported or mentioned by respondents, seven were protected and seven persecuted. However out of ten common plants mentioned, only two (20%) were persecuted (Table 1 & 2).

Table I: Common animal-centered folk-lore/traditional beliefs and the implication for animal conservation among the Bachama people of Numan, Adamawa State-Nigeria

Species	Local Beliefs	Conservation implication
Hippopotamus	The hippopotamus is believed to have human doubles. Any injury or illness it suffers, also affects the human double. If the hippopotamus is killed, the human double is said to die within the space of a year.	Protected
Leopard	The leopard is sacred to the <i>Kwapudon</i> clan of <i>Dong</i> community. It is a totem of their ancestors, and they also believe they descend from leopards. They do not hunt them and it never attacks them. Some communities also believe leopards have human doubles	Protected
Buffalo	The buffalo are believed to be evil spirits that possess the power to transform into humans. The frequency with which they attack humans is explained by their insatiable need for human blood. Horns are brandished as trophies with implication for bravery.	Persecuted
Warthog	The warthog is one of the three (3) wild animals that give hunters or warriors acclaim. Its tusk is kept as a trophy. These make them a target for hunters.	Persecuted
Lion	The lion is one of the three (3) wild animals that give hunters or warriors acclaim. The skin, claws and canines are kept as trophy. The hide or skin is worn by the King (Hama bachama) as it represents power and authority.	Persecuted
Crocodile	Crocodiles are common house hold pets among bachama people. They are also said to be a source of supernatural power. Crocodiles are bred in ponds, the water they live in are also used for various traditional charms. The rearing of crocodiles is popular among traditional worshippers.	Protected
Wildcat	Totem of the god <i>Labato</i> of the <i>Mbolong</i> community, who is believed to assume the form of a wildcat, thus it is a taboo to harm a wildcat. Other communities believe it's a mysterious creature and should be best left alone.	Protected
Monkeys	The monkey is believed to have human relatives. It is also believed to have a human double. Some clans trace their ancestry to monkeys. Others detest from hunting monkeys because of its striking resemblance to humans. It is also a common pet among <i>Bachama</i> people.	Protected
Turtle	The turtle is believed to have human relatives. It is also believed to have a human double. When turtles wander far away from the river, it is ethical to return them back to the water.	Protected
Snakes	Snakes are perceived as common enemy of man right from creation according to biblical accounts. People hardly keep snakes as pets. Even though a select few eat these snakes, there is no doubt, most of them will kill a snake on sight.	Persecuted
Heron	Hérons are sacred to the whole of bachama people, popularly known as the <i>bakato wapto</i> meaning "the pregnant bird". The bird sings at night, the male are said to have feathers so large, that they look like three birds put together, when it is caught, only the feathers are removed before it is freed. The feathers are worn only by the Hama Bachama (king). It is forbidden to kill herons in Bachama land.	Protected

Owls	The owl is viewed as a mysterious animal, mostly due to its nocturnal behavior, ability to fly discreetly, and large human-like eyes. They believe witches and wizards assumed the form of an owl to wreak havoc during the night. This belief prompts Bachama people to kill owls on sight harboring the feeling of killing an evil person. This belief has a direct impact on owls.	Persecuted
Vultures	The vulture is widely regarded as a misfortune carrier among the Bachama. Only a select few were able to attach the vulture to a particular importance; recycling dead carcasses and waste management.	Persecuted
Fishes	The Bachama people are renowned fishermen that scour the River Benue and River Gongola. They consume almost every type of fish. Falling water levels has influenced the abundance of fishes in the river. So, fishing has a negative impact on the abundance of fishes.	Persecuted

Table II: Common folk-lore /traditional beliefs and the implication for plant conservation among the Bachama people of Numan, Adamawa State-Nigeria

Species	Local Beliefs	Conservation implication
Tamarind	Tamarind plant is believed to be a dwelling place for evil spirits, so it scares lumberjacks away. Its fruits are used in preparing dishes, while the leaves and bark are used for medicinal purposes.	Protected
Baobab	The Baobab tree is believed to harbor spirits, so it is hardly ever cut down. Its leaves and fruits are used for preparing dishes and delicacies. It also provides a good shade.	Protected
Neem	The neem tree is popularly known for its medicinal value. It also provides good shade. It is one of the most populous trees in the savannah.	Protected
Desert Date	The desert date is sacred to the communities of Kikon and Imburu. They are regarded as properties of the goddess <i>Matano faran</i> . This plant species is not cut down for any reason at all. It is believed that the quick-tempered goddess punishes perpetrators instantly.	Protected
Cactus	The Cactus is a sacred plant among the bachama. Traditional worshippers use it to create charms. The sap is also believed to have medicinal value.	Protected
Moringa	The moringa plant is well known for its medicinal value. Its leaves and seeds are used in preparing delicacies.	Protected
Devil Beans	The Devil's bean plant is a specie that is widely detested for the extreme itchiness it produces on contact. It is believed to be of medicinal value	Persecuted
Mahogany	The mahogany is of high medicinal value; the bark is harvested from the tree and used to treat a wide range of diseases.	Persecuted
Fruit Trees	A wide range of plant species, which are popularly known for producing fruits which are edible to humans.	Protected
Winter thorn tree	Serves as ancestral land marks or indicate farm boundaries. They also serve as the best shade during farming seasons because the thorns on the tree make it difficult for snakes to crawl on.	Protected
Tamarind	This tree has a reverse phenology, as it shed its leaves in the rainy season and retains its leaves during the dry season. Its pods are used as feed for animals.	Protected

Table III: Age distribution and perception of conservation knowledge/beliefs of respondents in the study area.

S/N	Age	% Distribution	Knowledge			Belief			Essential		
			-	0	+	-	0	+	-	0	+
1	Youth	26.00 %	24	1	43	43	0	23	29	1	36
2	Mid-age	33.50 %	3	0	50	14	0	38	11	0	41
3	Old	40.50 %	4	0	75	32	0	50	26	0	56
	Total	100 %	31	1	168	89	0	111	66	1	133
			15.5%	0.5%	84%	44.5%	0%	55.5%	33%	0.5%	66.5%

Values within table are counts except stated otherwise. Under column 6 (Essential), (+) = Agree, (-) = Disagree, 0 = Not sure

Table IV: Literacy level among respondents in the study area.

S/N	Level of Literacy	% Distribution	Knowledge			Belief		
			-	0	+	-	0	+
1	Illiterate	2.00 %	0	0	4	0	0	4
2	Primary	8.00 %	1	0	15	1	0	15
3	Secondary	45.00 %	14	1	75	14	1	75
4	Tertiary	45.00%	15	0	75	15	0	75
	Total	100 %	30	1	169	30	1	169

Table V: Perception/ Knowledge of Folk-lore between Urban and Rural populations

S/N	Settlement	Perception			Perception			Knowledge			Essential		
		On Plants			On Animals			-	0	+	-	0	+
		-	0	+	-	0	+						
1	Urban	6	8	86	8	7	85	24	0	76	54	2	44
2	Rural	1	0	99	20	8	72	8	2	90	11	0	89
	Total	7	8	185	28	15	157	32	2	166	65	2	133

DISCUSSION

On conservation being utilitarian

Results reveal that respondents are most likely to conserve species that are of use to them, as shown in the massive conservation of fruit trees and other medicinal species. Species whose value are unknown are persecuted more. This reaffirms the findings of Polasky et al. (1997) that conservation is largely utilitarian and when use is not known, abuse is eminent. The task at hand will be to make people see beyond the utilitarian value of species, perhaps they will be more inclined to conserve them. One way of doing this is to follow the intrinsic approach to conservation; advocating for a species right to existence and the value a species has outside the needs of man (Ando et al.,1998).

Fear of certain species

Fear of species plays a good role in both persecution and conservation of species. For example, snakes and buffalos are persecuted because people fear them, while the heron and hippopotamus are

preserved because they fear the consequences and repercussions of having any dealings with them outside what is permitted by customary law. If the Heron is conserved because of fear of the consequences of anti-customary practice, a similar approach could be used to harness the fear of snakes or its loathing into some positive measure for its protection and conservation.

Worrying trends

From the results, It shows that in Urban settlements, even though the Old people as defined in this study (above 45 years) are well versed with folklore, the youths are mostly ignorant of these practices which is a clear indication that folklore or traditional knowledge is not effectively passed down to the younger generation. This trend is disturbing if allowed to persist because there are strong indications that in a few years to come, folklore will have no influence in urban settlement. However, in rural settlements, when the old talk about folklore, the youths only reaffirm the fact that these beliefs and values have been passed on to them.

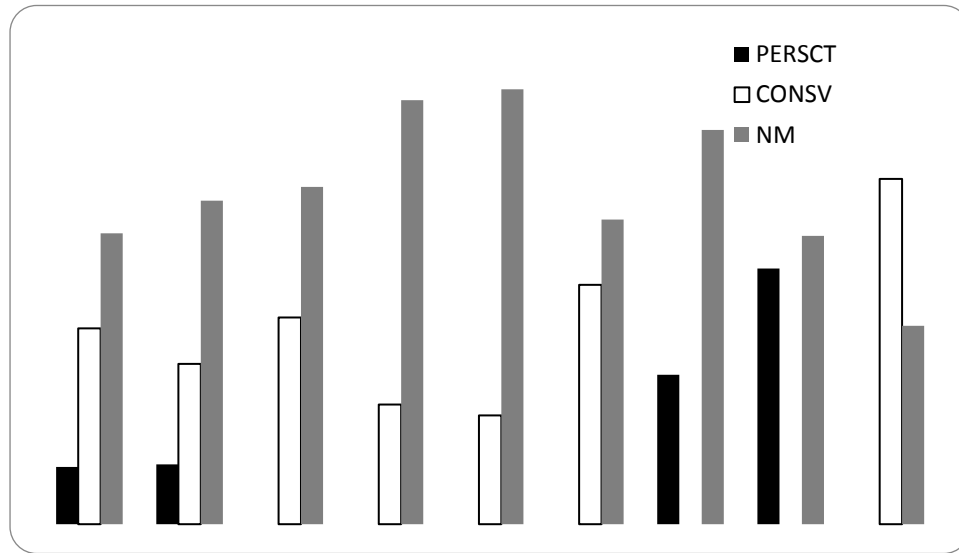


Figure I: Conservation awareness and beliefs held among respondents on some common plant Species in the study area. Bars represent frequencies (individual respondents/plant species)

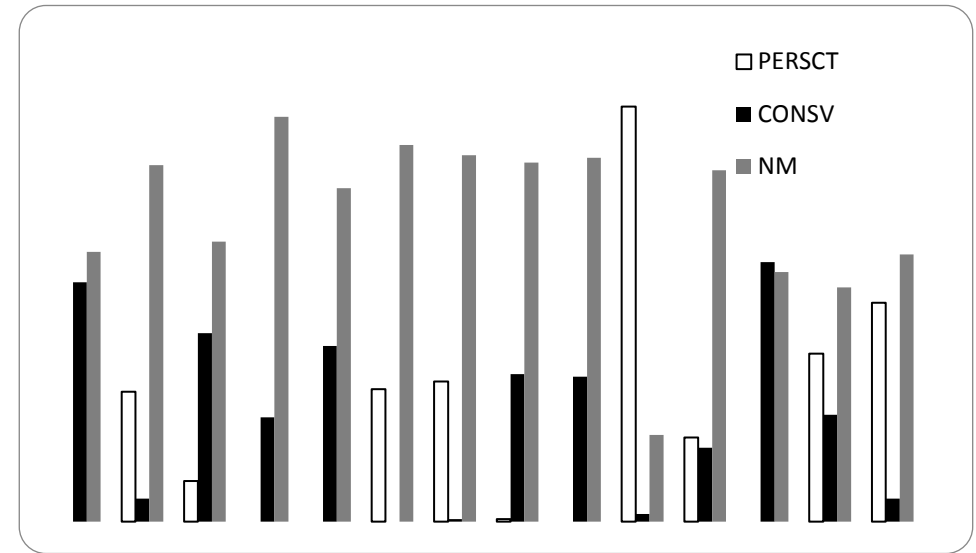


Figure II: Conservation awareness and beliefs held among respondents on some common classes of animal species in the study area. Bars represent frequencies (individual respondents/animal species)

DISCUSSION

There is still a lot to be drawn from this rather disturbing trend. One big consolation, is the fact that folklore is still highly respected and the values inculcated and transferred to the future custodians (the youths) in rural communities. Of great importance is the fact that what is left of our wildlife and forest, is still in the custody and domain of the rural population. Since this group has proved better stewards of the environment, there is still hope for effective protection and conservation of biodiversity in Africa.

Plant and Animal conservation among rural and urban settlers

Results shows appreciable plant conservation among rural and urban settlers, with rural settlers conserving plants more than urban settlers (Table 5). This explains the presence of abundant remnant forests and plant species in rural areas. Conversely,

the urban settlers tend to be more animal friendly than rural settlers because of massive hunting activities in the rural areas (Table 5).

Negative Practices

Kikon hunting festival: One of the most prominent cultural practices is the hunting festival between Kikon, Dong, and Imburu villages. The Rendezvous was a sacred tree in Kikon village from where the different hunting parties scatter. It was under this tree they all gathered after hunting. Any Hunter that killed a lion, a buffalo, or a warthog, was required to place a stone at the trunk of the tree as a reminder. This tradition has been going on for nearly a century. A practice like this places pressure on wild life especially animals. The respondents have also confirmed that seeing a lion, buffalo or a warthog is now a very rare occurrence if not a matter of wishful thinking.

Buffalos and Lions are now restricted to zoos where they are protected for posterity. Hunting parties are still a common feature in the region; this and other negative practices should be discouraged and outlawed. These festivals can be harnessed and redirected to focus on hunting of species that may be overpopulated under certain regulations, just like the deer hunting festivals in western climes and trophy or sport fishing. In this case non target species (Species of conservation concern) can be census during these hunting festivals and reports made of species that become increasingly hard to find subsequently.

Positive practices

Planting of the winter thorn tree (Faidherbia albida) in farms: In the villages of Dong and Waduku, winter thorn trees are common site around farmlands. This tree species serve as ancestral land marks or indicate farm boundaries. They also serve as the best shade during farming seasons because the thorns on the tree make it difficult for snakes to crawl on. This tree has a reverse phenology, as it shed its leaves in the rainy season and retains its leaves during the dry season, providing adequate fodder for livestock during periods of scarcity. Its pods are used as feed for animals. But unknown to the locals, this leguminous plant fixes nitrogen into the soil, and can increase yields by 100% (FAO). This practice can be adopted by modern farmers to improve soil fertility and yield. This may not necessarily mean using them as farm boundaries, but rather as useful resources for agro-forestry practices and indirectly as shade tree species around our farmlands.

Fishing laws: The Bachama people are renowned fishermen that scoured the River Benue and River Gongola. Even though they consume almost every type of fish, there is a common law against catching fingerlings. Fishermen are required to capture only grown fishes while fingerlings that make the catch are returned to the river with the perception that they will become adult fishes in the future. While Europeans regulate fishing activities with nets of specific mesh sizes (usually large enough to allow selective capture of bigger fish species), the Bachama fishermen depend on their good conscience to return fingerlings to the river. This action by the local fishermen attests to a society that has long been aware of the situation of their resources and the need to conserve for future use. However, these practices are coming under strong scrutiny by fishermen who find it increasingly difficult to catch enough fishes irrespective of fish size to meet their daily needs of monetary benefits and subsistence. Fishermen are forced to contend with the meager number of fishes they catch, while a good number of them find it difficult to abide by these customary laws. Upon further enquiry, the elderly fishermen were quick to point out the drop in water levels as one of the

reasons for reduction in the number of fishes in the river. Irrespective of the current situation of things, this kind of fishing laws will do Nigeria a great deal of good, especially with the looming problem of biodiversity loss. It is interesting to note that this local practice of selective fishing by returning fingerlings back to the river is similar to western or modern fishing practice. However, while in the Western climes mesh sizes help to selectively control over-harvesting or harvesting of fingerlings, the locals have to depend on their conscience and moral compass to guide them on what to take home after an assortment of fishes of various species and sizes are caught in their unregulated nets (unspecified mesh size). As earlier mentioned, this local conservation or sustainable harvest approach requires high moral standards on the part of the fishermen for any tangible outcomes. One way this can be maintained in the face of the present economic realities, is to diffuse pressure through good government intervention, to improve living conditions of the locals and ensure that poverty is combated to a bearable level. Perhaps the voice of reason and good stewardship obligations will not be muted by economic hardship if the locals have a full stomach and a pocket full of cash from other livelihood options.

CONCLUSION

In a nutshell, traditional practices tend to do more good than harm; reaffirming the roles of local people in implementing conservation strategies (Sekhar, 2003). There will of course be downsides, but we can adopt and encourage the positive traditional practices, while we discourage negative ones. Since our natural resources and wildlife are highly depleted as a result of increasing human pressure, we need to employ all methods possible to preserve them (Moon, 2014). In trying to redirect and educate locals to avoid folk-lore with negative implications to biodiversity, conservation practitioners should provide incentives in the form of alternative livelihood options where the beliefs are centered on pecuniary benefits rather than traditional values with positive implications for conservation. However, care must be taken to avoid a situation where locals are made to be expectant rather than indulgent.

REFERENCES

- Ando, A., Camm, J., Polasky, S., & Solow, A. (1998). Species distributions, land values, and efficient conservation. *Science*, **279**(5359), 2126-2128. DOI: [10.1126/science.279.5359.2126](https://doi.org/10.1126/science.279.5359.2126).
- Akindele, S.O. (2010). Forest Restoration through Traditional Institutions in Nigeria: Challenges and Prospects. From <http://www.cfc2010.org/papers/session13/Akindele-s13.pdf>.

- Asena, F. M. (2013). Attitudes of local communities towards conservation. University of Eldoret, department of wildlife management.
- Banjo, A. D., Lawal O.A., & Songonuga E.A. (2006). The nutritional values of fourteen species of edible insects in Southwestern Nigeria. *African Journal of Biotechnology* Vol. 5(3), pp 298-301.
- Bassey, A. E., Kanung R. (1996). A brief look at conservation ethic within the culture of people of Okwango. In: Obot E., Barker J. (Eds.): *Essential Partnership- The Forest and the People*. Paper presented at the Workshop on Rain Forest of South - Eastern Nigeria and South Western Cameroon held at Obudu Cattle Ranch Cross River State, Nigeria on 20th -24th October 1996.
- Hen, L (2006). Indigenous knowledge and biodiversity conservation and management in Ghana. *Journal of Human Ecology*, 20(1): 21-30.
- Jones, J.G., Andriamarivololona M.M., & Hockley N. (2008). The importance of taboos and social norms to conservation in Madagascar. *Conservation Biology*, 22: 976-986.
- Kobina, E.D. & Kofi A.A. (2009). Change and Continuity: Using Indigenous Knowledge to Achieve Environmental Sustainability in Ghana. Paper Presented at the 7th International Science Conference on the Human Dimensions of Global Environmental change. Germany. Bon, 26th-30th April, 2009.
- Martin, J., Maris V., & Simmberloff D.S. (2016). The need to respect nature and its limits challenges society and conservation science. *PNAS* 113 (22), 6105-6112.
- Nganje, W, Cheryl W., & William L. (2009). A Comparison between. Perception of Risks and Willingness to Serve GM Foods. *Journal of Food Distribution. Research*, Vol. 40(2):58-71
- Obasohan, E.E (2008). Fisheries biodiversity: The role of a traditional taboo/ritual prohibition in the management and conservation of the fish resources of Ibiekuma Stream in Ekpoma, Edo State, Nigeria. *Bioscience Research Communications*, 20: 257-264
- Polasky, S., Doremus H., Rettig B (1997). Endangered Species Conservation on Private Land. *Journal of Contemporary Economic Policy*. Vol 15(4), pp. 66-76
- Rabearivony J., Fanameha I. E., Mampandra J., & Thorstrom R. (2008). Taboos and social contracts: Tools for ecosystem management - lessons from the Manambolomaty Lakes RAMSAR site, western Madagascar. *Madagascar Conservation and Development*, 3: 7-16.
- Saka O.J, Emmanuel T.I, Abideen A.A, Emeka E.O, & Adesoji A.A. (2012). The Role of Traditional Laws and Taboos in Wildlife Conservation in the Oban Hill Sector of Cross River National Park (CRNP), Nigeria. *Journal of Human Ecology*, 39(3): 209-219
- Sarfo-Mensah, P., Oduro W. (2007). Traditional Natural Resources Management Practices and Biodiversity Conservation in Ghana: A Review of Local Concepts and Issues on Change and Sustainability. <http://www.feem.it/Feem/Pub/Publications/WPapers/default.htm>.
- Sekhar, U. N. (2003). Local people's attitudes towards conservation and wildlife tourism around Sariska Tiger Reserve, India. *J Environ Manage*. 2003 Dec;69(4):339-47
- Tengo, M, Johannsson K, Rakotondrasoa F, Lundberg J, Andriamaherilala J-A (2007). Taboos and Forest governance: Informal Protection of hot spot dry forest in Southern Madagascar *Ambio*, 36(8): 683-691.
- Wienecke, M. A. (2005). Sustainability and the Role of Biodiversity: The Impact of Anthropogenic activities. *Journal for Sustainable Development in Africa*.