The use of myths and taboos in wildlife conservation: The case of Bayelsa-East Senatorial District of Nigeria

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Abstract

The use of myths and taboos in species conservation represent a sustainable *in situ* means to wildlife protection. This study examined the role of taboos (traditional laws) in wildlife conservation within Bayelsa-East Senatorial District. Data were collected using a combination of semi-structured open-ended questionnaire guide and field observations, as well as species-evidence left behind. Informants for the study were selected from fifteen communities across the Local Government Areas (LGAs) that constitute the district. Local abundance status of the species implicated in the myths and taboos was determined within the various ecological settings, and likert scale was used to evaluate the informants' perceptions on the taboos in relation to their effectiveness at protecting the identified species. The punishments for non-compliance with the taboos, as well as hypothetical inferences for the species conservation were documented. Ten (10) animal species in nine families were implicated in Bayelsa-East myths and taboos. The taboo animals were in 5 classes within Kingdom Animalia; members of the Class Reptilia (*Crocodylus niloticus, Python regius, Python sebae* and *Varanus niloticus*) were the most implicated; followed by Aves (*Haliaetus vocifer, Macropygia doreya, Strix nebulosa*). Abundance scale revealed that periwinkle (Gastropoda) was very abundant in Nembe and Brass. The informants' perception on the effectiveness of the taboos (e.g. forbidding of hunting or killing Ekekoru, *Python regius*) in relation to the species protection revealed that the taboos were strongly effective in protecting the species in Nembe. The taboos in the study area were species specific, hence animals forbidden in Nembe and Brass LGA were not exclusively forbidden in Ogbia communities, and vice versa. The informants confirmed their beliefs and awe in the taboos and forbade abusive use, thus substantiating the taboos' potential as sustainable tool for wildlife conservation.

Keywords: Taboos and myths, animal taboo species, wildlife conservation, Bayelsa State

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Introduction

An important aspect of ethnoecology is the conservation of species diversity. Conservation is regarded as the management for change that emphasizes the dynamics of ecosystems, species and populations that are to be conserved (Luken 1990). The concern for natural resources management, which considered wild animals as biological resources that have to be preserved *in situ* in such a way that would ensure they do not become exhausted or extinct is an age-old one, and was clearly enunciated by Gifford Pinchot, who equated conservation with the systematic exploitation of natural resources (Forbes 2004). Conservation efforts have focused much attention on tropical forests because they are the richest strongholds of terrestrial biodiversity, given that the exploitation of natural resources in the tropics results in the destruction of large genetic reservoirs.

In the olden days, native people developed a variety of resource management and conservation practices that continue to exist in tropical Africa and other parts of the world (Appiah-Opoku 2007; Rim-Rukeh *et al* 2013). One of such approaches is the use of traditional methods to contain incessant meddling with wildlife and natural environment (Israel *et al* 1997; Kayode and Otoide 2007). The conservation of nature by the establishment of local practices, beliefs and traditional laws is a long-standing tradition among tribal people in many parts of the world (Jeeva *et al* 2005; Sukumaran and Jeeva 2008; Kayode *et al* 2015), and it is central to communities where they are considered cultural patrimony. According to Gbonegun (2021) several attempts have been made toward ensuring wildlife diversity conservation in Nigeria; these include the allocation of protected areas (sanctuary, reserves and parks), listing and protection of species, enactment of laws and regulations among others (Usman and Adefalu 2010; Kayode *et al* 2015). Regrettably, these measures in themselves do not guarantee the conservation of wildlife. There have been calls recently for the application of traditional measures in the protection of wild animals (Berkes *et al* 2000; Lingard *et al* 2003; Jimoh *et al* 2012;

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Essel 2020), one of which is the application of taboos (traditional laws). According to Chapman (2004), taboo is a social prohibition of something and is often connected to ritual: its institution is a universal regulator of human behaviour, and the moral order of the society (Lingard *et al* 2003; Alexander *et al* 2017). Whereas, myths are traditional legends created in a time unspecified, often attempting to explain the origin of natural phenomenon or aspect of human and may serve to direct social action and values (Maksel 2000). The role of taboos and myths in the conservation of a large number of elements of local diversity, regardless of their use value is fundamental to maintaining pristine ecosystems (Hilgert and Gil 2006).

Taboo is an important aspect of the cultural ethos of the indigenes of Bayelsa-East Senatorial District, Bayelsa State, Nigeria who consider themselves connected with their bio-physical environment in a web of spiritual relationship. The region is rich in species and ecological diversity, and the local ecological knowledge is enshrined in their culture. This is reflected in their interaction with animals within the various ecological settings. Consequently, this study was aimed to identify and document myths and taboos associated with wild animal protection in the region and seek to determine their potentials in conserving taboo species in the area.

Materials and methods

Study area

This study was carried out in Bayelsa-East Senatorial District (BESD), Nigeria. The senatorial district comprises of three Local Government Areas (LGAs), Nembe, Brass and Ogbia. The designation of the LGAs represents the sub-Izon dialects spoken in the districts. English is the official language; BESD is one of the three districts that constituted Bayelsa State. Geographically, BESD is located within coordinates, 4º15'N and 5º23'N, and 5º22'E and 6º45'E. The district is riverine, estuarine in setting, and border Atlantic Ocean on it south fringe, with an area of about 3,862km^2, the greater part of which lies under water. Bayelsa-East Senatorial District has a population of about 494,699 inhabitants. The demographic figure of Ogbia, Nembe and Brass LGA is put at 179,606, 130,966 and 184,127, respectively (Census 2006). The natives engage mostly in farming, fishing and trading. Three distinct vegetation zones exist in the oil rich district: lowland rainforests, freshwater swamp forests and mangrove forests (Afa 2011). The vegetation composition is heteromorphic, and rich in species diversity. The climate is tropical, mean monthly temperature ranges from 25 to 31ºC and relative humidity is high throughout the year but decreases slightly in the dry season. Coastal and estuarine erosion are constant features of the landscape.

Taboo and myth assessment

This study was conducted between August 2021 and April 2022. Data on taboo animal species were collected using semi-structured open-ended questionnaire guide, field observations as well as evidence of the presence of species, such as droppings, sound calls heard, distinct smile, shed skins in ecdysis and fur left behind by animal. In each LGA, five communities were chosen: Akipelai, Otuagbagi, Otuokpoti, Otuogidi and Otuasega in Ogbia LGA; Ogbolomabiri, Bassambiri, Oluasiri, Iyalakiri and Agirisaba in Nnebe LGA; Okpoama, Omugbene, Ewoama, Omiekiri and Elepa in Brass LGA. Ten individuals randomly selected from each of the fifteen communities that have maintained continuous domicile for at least 10 years in the community and had of late encountered a species implicated in the taboos in a period less than two month were interviewed. The interviews were conducted with a fairly open frame work that allowed focus, conservational and two-way communication (after Kayode *et al* 2009). A total of 150 respondents (informants) were interviewed, each respondent was asked to recall the myths and taboos connected to wild animals in their community and the penalty for non-compliance. Besides, group interviews were held in each community (at least two groups in each case consisting of not less than four respondents) in order to determine group consensus on the identified taboo animals, the interviewees comprised mainly of chiefs, clan heads and the elderly.

The local abundance (Table 1) of the species mentioned in the taboos was determined within the various ecological settings based on the information supplied by the informants, using the time taken to sight the species or physically encounter with the species within the natural environment.

Table 1: Abundant scale used to determine local abundance of the species mentioned in the Taboos within given time-frame

Time-Frame of Searching	Abundant Status
< 2 hours	Very Abundant
2 hours – 48 hours	Abundant
48 hours – 96 hours	Frequent
4 days- 2weeks	Occasional
After 2 weeks	Rare

The data obtained were expressed in percentage. In addition, a Likert scale (Table 2) after Anoliefo *et al* (2015) was used to determine the informant's perceptions on the status of the taboos in relation to its effectiveness in protecting the species identified.

Table 2: Likert Scale on informant's perceptions on the status of the taboos in relation to its effectiveness at protecting the identified species

Informant's perceptions	**Scale**
Strongly effective	4
Slightly effective	3
Slightly compromised	2
Strongly compromised	1
Not tabooed in the LGA	0

The claims of the majority on each species was used as the informants' consensus in each case.

Results

The socio-demographic characteristics of the informants are presented in Table 3. Male informants (62%) were more than the female (38%), with the majority being in

their prime (20-65years) and 53% of the settlements were located offshore. Most of the informants were married 60%), literate, could read and write (51%), mainly of the Christian faith and engaged mostly in fishing activities. The taboo animals existed in 5 different classes within Kingdom Animalia. Members of the Class Reptilia were the most implicated by percentage (40%) followed by Aves (30%), while Class Mammalia, Gastropoda and Chondrichthyes ranked low by percentage. A total of 10 species of animals belonging to 9 families were identified in Bayelsa East myths and taboos (Table 4). The informants' indigenous knowledge and claims on the species implicated in the myths and taboo are presented in Table 5, likewise are our observation and conservation inferences. The habitats of the species ranged from tropical forests to mangrove swamps and also from fresh water swamps and estuaries to marine habitat. It was observed that a species, *Python sebae* was commonly referred to as *Boa constrictor*, the general resemblances of the former to the latter frequently lead to its being mistaken for *B. constrictor* in the area.

The ascertained myths and taboos in the study area are presented in Table 6. Abundance scale revealed that periwinkle was very abundant in Nembe and Brass, so also were the pythons and Africa fish eagle. However, sharks were rare in Otuogidi, and Okpoama Brass.

Table 7 shows the list of animals implicated in the taboos identified in each of the LGAs. Ogbia has the highest number of taboo animal, while Nembe has the least. The informants' perception on the tabooed animal reveals that the taboos were strongly effective in preserving the animals associated with them in Nembe, whereas the perceptions of the informants at Ogbia suggested that taboos identified in Ogbia LGA has been strongly compromised.

Table 3: Socio-demographic profile of informants in the study area

		Frequency and percentage of informants in the three LGAs			
Criteria	Description	Nembe LGA	Ogbia LGA	Brass LGA	Percentage (%)
Gender	Male	36	26	31	62
	Female	14	24	19	38
Settlement	Onshore	2	5	-	47
Locations	Offshore	3	-	5	53
Age (years)	<20	7	2	5	9
	20 – 65	35	21	36	62
	>65	8	27	9	29
Marital Status	Single	7	5	3	10
	Married	28	32	30	60
	Divorced	10	7	9	17
	Widowed	5	6	8	13
Literacy status	Illiterate	22	19	32	49
	Literate	28	31	18	51
Occupation	Farmers	6	19	5	20
	Hurters	3	4	2	7
	Fishermen	19	7	22	32
	Traders	12	8	15	23
	Civil servants	10	12	6	18
Religion	Christian	40	46	39	83
	Islam	-	-	-	-
	Traditionalists	10	4	11	17

LGA: Local Government Area

Table 4: Animals identified in Bayelsa-east taboos and myths

S/N	Class	Family	Species	Common name	Local name
1	Gastropoda	Lithorinidae	*Lithorina littorea*	Periwinkle	Isem, Isamme
2	Chondrichthyes	Lamnidae	*Isurus oxyrinchus*	Shark	Ofrima
3	Reptilia	Crocodylidae	*Crocodylus niloticus*	Nile crocodile	Isegi
4	"	Pythonidae	*Python regius*	Ball/Royal python	Ekekoru
5	"	"	*Python sebae**	West Africa rock python	Adagba, Mindikon, Bueke
6	"	Varanidae	*Varanus niloticus*	Monitor lizard, Iguana	Abedi
7.	Aves	Strigidae	*Strix nebulosa*	Owl	Okuku
8	"	Columbidae	*Macropygia doreya*	Sultan's cuckoo-dove	Otiri
9	"	Accipitridae	*Haliaetus vocifer*	Africa fish eagle	Agbalakoko
10	Mammalia	Herpestidae	*Mungos gambianus*	Gambian mongoose	Idudu

Table 5: Habitats and proportion of taboo species in each class

S/N	Class of Animals	Percentage (%)	Habitat
1	Mammalia	10	Tropical forests, Estuarine, mangrove swamp
2	Aves	30	Tropical forests
3	Reptilia	40	Mangrove swamp, and Aquatic environment
4	Gastropoda	10	Estuarine, mangrove swamp,
5	Chondrichthys	10	Marine habitat

Discussion

The informants in the study area were acquainted with the taboos identified in their respective communities. Taboo knowledge of the respondents transcends age, gender, religious affiliates, settlement locations, marital as well as literacy status. Although most of the informants were in their prime and engaged in different means of livelihood, yet their knowledge on myths and taboos spread across, irrespective of generation gap. Respect for tradition abounds regardless of their literacy status; besides the geographic locations of the informants were no barriers to taboo-mindedness. Moreover, religious affiliates put no restrictions to taboo compliance as Christians and adherents to local beliefs ensured compliance with the taboos in their communities. Taboos species in the study area were mostly higher animals that inhabit forests and marine environments.

The fact that majority of the informants were married suggests that, awareness of myths and taboos were shared as part of concern among family members; this might have influenced their offspring on myths and taboos knowledge, affirming Atoma (2011), who reported that indigenous knowledge passed from generation to generation by word of mouth and cultural rituals and this has been the basis for conservation in addition to a wide range of other activities that sustain a society and its environment. Although, many of the animal species were taboo for spiritual reasons, yet a few for availability sake. Apparent from the number of animal taboos identified, is respect for culture and tradition in the study area, as the taboo species emphasize a dedicated relationship of the people with their tradition and culture.

The taboo animals identified were species-specific, i.e. it prohibited harvesting, and regulated the use of a particular species, banning its exploitation for any use that could prompt scarcity at all times (Kideghesho 2009). Genera which were typically related to the taboo species (in taxonomic grouping) were also implicated in the taboos and were forbidden in some of the communities. As a result, all species of python, crocodile, eagle etc. were tabooed in the area concerned. Besides, all snake species in Nembe not connected to the specified snakes taboo, were by the taboo, protected in the environment as the abhorrence of snake-killing became closely linked with the life and culture of some of the folks. This corroborated Lingard *et al* (2003) who opined that a taboo that protects an animal species may also provide protection to a closely related animal by inclusive prohibitions.

The informants' perception on the effectiveness of the taboo in relation to the species protection reveals that the taboos were strongly effective on the taboo animals in Nembe, whereas, some of the taboos identified in Ogbia had been strongly compromised. This further corroborates the fact that taboos in the senatorial district were species specific; hence animals forbidden in Nembe and Brass LGA were not exclusively forbidden in Ogbia communities and vice versa.

Most of the taboo species were totems and totemic wildlife in the area and were mostly from the Classes Reptilia, Aves and Chondrichthyes, believed to have some negative spiritual connection with man and so were avoided (Osemeobo 1994; Sibiri 2014); hence protections for the taboo animals were guaranteed even when they strayed.

The most frequently narrated taboo stories in Nembe were tied to myths linking incidents between their forebears, periwinkle and python. And the narratives were expressed in similar account throughout all the communities in Nembe LGA, hence the abundance of the species in the ecological area. On the contrary, there was no generalized animal taboo or totem in the entire Ogbia LGA, rather taboo species identified were within the confines of a particular clan or community, which according to Bobo *et al* (2015) may also play roles in the conservation of the taboo species within the clan, because it is believed that when a totem is killed around the community, offenders will die. Punitive implications for non-compliance to traditional laws (taboos) were a known factor that can enhance the sustainability of taboo species in the study area; Byers *et al* (2001) asserted that such measures were motivators for positive outcome on wildlife protection.

While taboos offer great conservation measure for wild animals in the area, some of the species implicated are now becoming rare, probably due to poaching from neighbouring lands where the species were not tabooed, owing to the interconnectivity of forest estate and terrestrial waters. The mangrove forest, an important spawning ground (for many marine species) which once preserved reptiles in different sizes is currently witnessing severe depletion attributable to oil exploration, economic activities and social factors. Deforestation of the existing swamp forests, including the Akassa wildlife forest and Edumamon forest reserves in the district, coupled with constant perturbation such as oil spills presently witnessed in the aquatic environment is a cause for concern, a focus that could reduce the present and future options for using forests and protecting wild animals (FAO 2016).

Conclusion

Application of traditional measures in the conservation of wild animals is effective in ensuring wildlife protections. Thus, all wild animals linked to myths and taboos in

Table 6: Observation and conservation inference on the informants' indigenous knowledge and claims on the species implicated in the myths and taboo animals identified in the study area

S/N	Criteria	Informants' indigenous knowledge and claims	Observation and conservation inference
1	**Animals mentioned in the myths and taboos**	Ball python and Rock python	While deference and high level of taboo compliance was observed in the entire Nembe and Brass LGA, no taboo was attached to the mangrove swamp forest, the main habitat of the species. Besides, no section of the marine environment was tabooed, with the exception of some forbidden lakes in the Brass enclaves. Meanwhile, the mangrove forest has witnessed depletion attributable to incessant logging and oil pollution; the onslaught has by extension impacted on the abundance status of the species identified in the taboos. Thus, public enlightenment campaign on the need for mangrove forest conservation is implied. Besides, the swamp ecosystem will support cultivation i.e. afforestation of mangroves and other endemic rare tree species in the area. Moreover, enactment of forest traditional laws would guarantee the protection of reptiles in the area, because forest conservation is essential for species' sacredness.
	Taboos and Myths .	In the entire Nembe LGA and in some section of Brass, it is a taboo to hurt or kill Ekekoru (*Python regius*). The snake is set on pedestal stool and considered mother goddess of the land. It was widely believed that an ancient priest (Ogidiga) transmuted to the species, rendered assistance in unifying the community through religious ties, demystified, and solved communal issues. As a result, hurting or killing of the species was outlawed. However, while some of the folks grappled with identifying *P. regius* from *Python sebae* which looks similar, it was determined at that instance to implicate *P. sebae* and all other python species (in the taboo) in order not to wrongly kill Ekekoru and offend the gods. To this day, the people relate freely with the beast, either at home or abroad without getting hurt. They welcome the snake into their houses and usually revered it any time it came visiting.	
	Punishment for non-compliance	• Offenders may die mysteriously. This can only be averted by oblation, performing certain ritual cleansing such as pouring libation in the community shrine. • Anyone (indigene or stranger) who kills python openly within Nembe land would be killed at the instant. If the act is done unbeknown, then the culprit must perform human-like burial rites for the snake, as a sign of respect to lay it to rest.	
	Species abundance status	Abundant in its habitats	
2	**Animals mentioned in the myths and taboos**	Nile crocodile and Monitor lizard	Degradation of the natural range of the species was observed; siltation of lakes and creeks, dredging of sand along rivers course and the rapid breeding of invasive plant species such as *Sacciolepis africana* created constriction in water ways and reduced food (prey) for the reptiles. The informants were familiar with the taboo protected species, but the prevention of habitat degradation in the area is crucial to the protection of the crocodilian. Thus, anthropogenic activities should be reduced in the area, reforestation of low land forest trees should be encouraged and more lakes should be designated as forbidden lake in the area.
	Taboos and Myths	Killing of crocodile in Otuokpoti community of Ogbia LGA is strictly verboten (forbidden). In fact, an annual feast "Ogodia" is observed to emphasise the important of the animals to the locals. According to informants, blood oath was taken with the varmint reptiles to avert their frequent mauling and killing of indigenes doing business in the river. Subsequently, they give protection and aid to drowning folks, and victims of river boat accidents. It is said that the reptiles carried victims of boat accident to safety. It is a taboo to kill monitor lizard in Otuasega community, Ogbia LGA: The myth connected to its sacredness was shrouded in a fight in which the gods of the land engaged the lizard in defending the community.	

S/N	Criteria	Informants' indigenous knowledge and claims	Observation and conservation inference
		According to the myth, the lizard made the folks invisible to their rival; this led to victory. In order to show appreciation, killings or eating of the animal was outlawed.	
	Punishment for non-compliance	• Offender of the crocodile taboo crawled on the ground like the animal, develop a swollen mouth, and incurs unknown sickness that gradually leads to death. • A substitute for a hunted crocodile must be provided by offender; a first move to avert retribution, this is accompanied by oblation and cleansing. • Offender of the monitor lizard taboo who is a member of the community comes down with swollen mouth, unexplainable illness, or stomach ache that eventually leads to death. • Offender of the myth must present a young monitor lizard as substitute. • The consequence of monitor lizard taboo can only be averted by appeasing the gods with oblation, while ritual cleansing is performed in the community shrine on behalf of the offender.	
	Species abundance status	Frequent in the natural habitats	
3	**Animals mentioned in the myths and taboos**	Africa fish eagle, Sultan's cuckoo-dove, Owl	Birds are vulnerable to changes in any ecological settings resulting from air pollution, depletion in sources of food, and the destruction of their nesting ground. Anthropogenic factors such as logging and oil exploration are some of the biggest challenges in the area. Deforestation gives room to avian migration. Thus, the protection of forest trees should be prioritized; besides, the natives should be encouraged to preserve wild birds within their communities.
	Taboos, myths and inference	Africa fish eagle is a bird of honour in Agirisaba, and in parts of Nembe LGA. Eagles epitomize royalty, as such their feather is usually attached to the royal caps. The bird is a totem in Agirisaba Nembe LGA and also in Brass LGA. Sultan's cuckoo-dove is revered in Otuokpoti community of Ogbia LGA. It was believed that the gods engaged Sultan's cuckoo-dove in fortifying the community soldiers at battle fields; a feat that led to victory, besides the bird also guided folks who lost their way in the forest. Thus, hunting the bird is a taboo. It is also a taboo to hunt owl in Akipelai community Ogbia. Ornithomancy, an art of taking omens from the bird's cries is practiced in the community. Portent of the bird's cries can either be for good or ill-luck.	
	Punishment for non-compliance	• Offender of the taboo attracts the wrath of the spirit behind the totem. • Offender of the taboo must pour libation, local drink to avert ill consequences. Ritualistic sacrifice must be done immediately in the forest to appease the gods. • Offenders of the owl taboo come down with unknown illness which my result to death. Averting the consequence requires vigil for a number of days as declared by	

S/N	Criteria	Informants' indigenous knowledge and claims	Observation and conservation inference
		the gods, 12 bottles of local drinks are offered in each compound in the community, and 12 mats are bought for the bird's burial rites.	
	Species abundance status	Africa fish eagle and Sultan's cuckoo-dove are abundant. Owls are occasional.	
4	**Animal mentioned in the myths and taboos** **Taboos and myths** **Punishment for non-compliance** **Species abundance status**	Sharks It is a taboo to kill sharks (in Otuogidi, Ogbia LGA, as well as in Okpoama and some clans in Brass LGA because the gods use the fish to save victims of canoe accidents; it was said that the beast carried victims to safety. In appreciation to the god, killing of sharks was prohibited. • Offenders risk being afflicted by strange illness. To avert the consequence, any indigene that kills or eats the shark must be purified with early morning water from the river. Rare in abundance	Habitat degradation triggers a decrease in the proportion of food availability; which explains the disappearance of shark in the communities' marine environment. Shark being apex predator i.e. at the top of food chain in a marine ecosystem has preference for environment that supports its preys. The rarity of the species indicates a fall in preys abundant and contamination of aquatic environment. The natives were accustomed with the taboo, as well as the impacts of oil spills which account for environmental degradation, a cause for the absent of shark and many fishes in the area. Hence an enlightenment campaign on the danger of oil contamination of coastal areas is advised.
5	**Animal mentioned in the myths and taboos** **Taboos, myths and inference** **Punishment for non-compliance** **Species abundance status**	Gambian mongoose It is a taboo to kill Gambian mongoose in Otuogidi and Otuag-bagi communities in Ogbia LGA. The communities' deity often possesses the animal in order to salvage folks entangled within the forest enclave. Offender is plagued with severe illness which may lead to death. Libation with a local drink (*kaikai*) is rrequired to appease the deity on behalf of the offender. Occasional	The folks were acquainted with the taboo. Though taboo compliance seemed to have been relaxed in the area. The effectiveness of the traditional laws protecting the species has been adversely influenced by western civilization, although patches of sacred groves and fragmented forests still exist in some of the communities. Reintroducing the species identified in the myths and its ecological equivalents, while ensuring that relaxed traditional laws and regulation are revived would ensure the protection of the species. In addition, campaign on the importance of trees for ecological sustainability that necessitates tree cultivation by the indigenes is recommended.
6	**Animal mentioned in the myths and taboos** **Taboos, myths and inference**	Periwinkle It is a taboo to trade ion periwinkle in the entire Nembe LGA and in part of Brass LGA, mainly Okpooama and Twon communities. Harvesting periwinkle for consumption by the locals and as gifts to visitors is permissible; however, it is a taboo to turn periwinkle to a means of livelihood.	By the abundance scale used in this study, the species was very abundant in Nembe and Brass LGAs. However, oil contamination of the marine environment, swamps and estuaries is a major threat to the species' survival. Thus, enlightenment campaign should be projected and intensified

S/N	Criteria	Informants' indigenous knowledge and claims	Observation and conservation inference
		In honor of the mollusc, an annual festival "Isem-Olali" is observed to venerate the animal. The myths surrounding the taboo involved an oath taken by the ancestors of Nembe LGA never to trade the animal.	against illegal bunkering, the major cause of oil pollution in swamps and estuaries, the known habitat of periwinkles.
	Punishment for non-compliance	Offender of the taboo comes down with incurable illness; the body would mysteriously develop into periwinkle shell-like or covered by periwinkles. The eventuality is a terrible death. Meanwhile, reversing the retribution is unheard.	**Note**: Though sanction on trading periwinkle is only placed on natives, the natives themselves are careful of allowing non-natives, who would cash in on the fact that they are not implicated in the taboo exploit and sell the species (in other regions) within and outside Bayelsa State.
	Species abundance status	Very abundant	

Table 7: Informants' perception in each LGA on the effectiveness on the use of taboos to preserve the species

S/N	Species	Nembe LGA	Ogbia LGA	Brass LGA
1	*Crocodylus niloticus*	0	2	3
2	*Haliaetus vocifer*	4	0	3
3	*Isurus oxyrinchus*	0	1	0
4	*Lithorina littorea*	4	0	2
5	*Macropygia doreya*	0	1	0
6	*Python regius*	4	0	3
7	*Python sebae*	4	0	3
8	*Strix nebulosa*	0	4	0
9	*Varanus niloticus*	0	1	0
10	*Mungos gambianus*	0	2	0

4= Strongly effective, 3=Slightly effective, 2=Slightly compromised, 1=Strongly compromised, 0= Not tabooed in the LGA

communities where the taboos were considered cultural patrimony were safe, and folks confirmed their beliefs and awe in the taboos and forbade abusive use of the species. A general perception on the tabooed animals shows that the taboos were tough tools; effective in conserving animals associated with them, and guaranteed protection for the taboo animals when they strayed. While taboos remain vital tools in the protection of wildlife, the conservation of the species could in addition be observed by keeping their native habitat healthy; this can be achieved by ameliorating deleting factors via encouraging conservation practices that will ensure sustainability of the mangroves and other forests in close partnership with the natives. Pollution arising from oil exploration and illegal logging should be checked. It might also be necessary to dedicate some of the existing rare animals and forest formations in the area to taboos to salvage further exploitation. Furthermore, it is imperative to conserve the mangrove forest through effective legislation, perhaps some of the mangrove should be gazetted as reserves.

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