THE POTENTIAL ROLES OF SACRED NATURAL SITE(S) AND CULTURAL VALUES OF BIODIVERSITY CONSERVATION IN ZURU COMMUNITY OF KEBBI STATE, NIGERIA

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Abstract
Sacred Natural Sites (SNSs) are specific natural areas of the earth, which are believed to have spiritual, religious, cultural or historical significance to people or communities. These sites in recent times are recognized by conservationists as one of the primary networks of biodiversity conservation, because they connect people with nature. Many SNSs exist in Nigeria, but are understudied. Germache is a SNS that is located in Zuru Local Government Area of Kebbi State, Nigeria. This study determined the potential roles of Germache SNS and the cultural values of the community members on biodiversity conservation. An ethnographical research method consisting of a semi-structured questionnaire and Focus Group Discussion was used to assess and document the Indigenous Knowledge on Cultural Values of biodiversity conservation in the community. Responses from key informants who were between ages 25 and 75 years and have spent at least 20 years in the community identified crocodile (Crocodylus porosus) as a totem. Adansonia digitata and Vitellaria paradoxa were regarded as sacred monumental plants. About 87% of the respondents indicated an observed increased in crocodile population and vegetation cover over the years. Therefore, the site has a potential for biodiversity conservation due to restricted human access and taboos associated with any resource extraction. More so, the site is valued as a holy ground for conducting prayers and cultural festivities such as Uhola and Golmo.

Keywords: *Cultural values, Germache, Indigenous Knowledge, Sacred Natural Sites, and Totems.*

Introduction
Sacred Natural Sites (SNSs) can be defined as specific natural areas of the earth, which are believed to have spiritual, religious, cultural or historical significance to people or communities (Verschuuren *et al*., 2010). They are often associated with almost all types of habitat and biomes, including mountains, hill side,

valleys, caves, islands, rivers, lakes, lagoons, and forest groves (Verschuuren *et al*., 2008; Frascaroli, 2013). Indigenous or local communities (including institutionalized religious organizations) set them aside for cultural or spiritual purpose, including worship, rituals, remembrance, burial ceremonies, and watershed value (Malhotra *et al*., 2007; Ormsby and Edelman 2010; Verschuuren *et al*., 2010, Frascaroli, 2013; Mallarach *et al*., 2016). They are in recent times, recognized by the conservationists as one of the primary networks of biodiversity conservation because it linked people with biodiversity found in nature (Verschuuren *et al*., 2010; Frascaroli, 2013; Verschuuren and Brown, 2018). They play an important key role in the well-being of indigenous and local communities as they reaffirm and strengthen the cultural identity (Verschuuren *et al*., 2010).

According to UNESCO and CBD, (2017), biodiversity refers to the variability among all life forms (including populations of different animals, plants and microorganisms) that are found in different ecosystems (including terrestrial, arboreal and aquatic habitats) and the ecological complexes of which they are part. The wellbeing of humans depends largely on biodiversity (Pretty *et al*., 2009). Biodiversity stands at the pillar of any civilized society by benefiting both mankind and its environment in diverse ways. For example, the provision of foods, medicines and industrial raw materials among other ecological services such as natural purification of water and air, landscapes structuring, prevention of soil erosion and recycling of soil nutrients. More so, it influences the beliefs and value system of people by creating a connection between humans and other biological entities, including plants, animals and the spiritual consciousness of the people concerning such relationship (Kimmerer, 2002; Pretty *et al*., 2009; Verschuuren *et al*., 2010). However, with the recent escalating threats suffered from the loss of habitat to agriculture and resource exploration as well as the subsequent adverse effect of climate change, biodiversity is consequently loss in an unprecedented manner (UNESCO and CBD, 2017). Therefore, a renewed focus on a cultural values approach to conservation, and especially to protected area manage by indigenous people has been encouraged (Verschuuren *et al*., 2018).

Culture is a set of distinctive spiritual, material, intellectual and emotional features of a society or social group which encompasses, in addition to art, literature, lifestyles, value systems, traditions and believes (UNESCO, 2002). Cultures and biodiversity are two inseparable dual realms that have co-evolved over the centuries (Berkers, 2004; Pretty *et al*., 2009; Verschuuren *et al*., 2018). Human beings have an innate need of connection to nature which is often

expressed in their culture. They tend to forge or establish some sort of relationship with their immediate environment (Berkers, 2004). There springs up means of livelihoods, utility, norms, beliefs, value systems, languages (organisms are named differently) and knowledge (Pretty *et al*., 2009). The earliest human inhabitants on earth have through the ages been interacting with nature through explorative activities in search for food, shelter, clothing's and inspirations (Posey, 1999; Toledo, 2001). Therefore, understanding the underlying cultural values that connect humans and nature is important for the conservationist in formulating conservation strategies using an integrated biodiversity conservation approach, including the application of Indigenous Knowledge System (IKs) (Gandile *et al*., 2017). The links between different cultures of the world and biodiversity are reflected in physical convergence (Dudley *et al*., 2012). The relationships between people and nature are socially and culturally conditioned, creating a variety of reasons for conserving biodiversity across different cultures and societies (Yamin, 1995).

Conservation of biodiversity through SNSs has been a common ancient practice which has, in turn, helped in the conservation of cultural landscapes (Odera, 1997; Posey, 1999; Hens, 2006; Verschuuren *et al*., 2010). There is an intimate connection between biodiversity found in SNSs and cultural values of certain socio-cultural groups or institutionalized religion (Putney, 2005). Certain plants and animals species found in SNSs are considered sacred and therefore used as objects of worship known as totems (Hens, 2006; Oviedo, 2012). Indigenous or local communities believed that totems found in SNSs are holy and sacred. They are culturally protected from exploration by taboos and management codes that are highly regulated and maintained by their tradition and customs (Hens, 2006). This has significantly contributed for conservation of rare and endangered species (Mgumia and Oba, 2003).

Bibliographic records reveal that, there are many SNSs around the world. They occur for the most part in Africa and Asia, but broader survey is currently incomplete (Dudley *et al*., 2012). It is clearly evident that these sites are potential key players and arguably one of the primary networks of biodiversity conservation that is essentially valued by different cultures of the world (Urtnasan, 2003; Mgumia and Oba, 2003; Bhagwat and Rutte, 2006; Malhotra *et al*., 2007; Ormsby and Edelman, 2010; Verschuuren *et al*., 2010; Ormsby, 2013, Babalola *et al*., 2014). Their vast occurrence, and by implication, total area around the world is arguably an important aspect of conservation. For example, in Africa, a total of 920 culturally protected forests covering about 6000km^2 have

been identified in Tanzania (Dudley *et al*., 2009). There are between 100,000 and 150,000 surveyed SNSs across 19 out of 28 states in India (Malhotra *et al*., 2007). Over 1200 SNSs in every 300 hectares of land are found in Kodagu district in the Western Ghats of India alone (Bhagwat and Rutte, 2006). It is also estimated that there are over 250 Holy Hills of the Dai people in Xishuangbanna, China, occupying an area between 1000 and 1500 hectares (Liu *et al*, 2002).

However, in Nigeria, little is known about the existence of SNSs and they are often neglected and unrecognized. The Sacred Lakes of Niger Delta in Bayelsa state (Verschuuren *et al*., 2010) and Germache SNS in Zuru Local Government Area of Kebbi State, Nigeria, are few examples of such sites that are yet to receive formal recognition. However, Osun-Osogbo Sacred Grove, located in Osun state, Nigeria and Sukur Cultural Landscape located in Adamawa state, Nigeria are the only two (2) SNSs that have been enlisted in the UNESCO world heritage site in the year 2005 and 1999 respectively. Such other sites enlisted as tentative (an inventory to be considered for nomination by the UNESCO) includes, Benin Iya/Sungbo's Eredo in 1995, Oke Idanre (Idanre Hill) in 2007, Arochkwu Long Juju Slave Route (Cave Temple Complex) in 2007, Surame Cultural Landscape in 2007, Ogbunike Caves 2007 and the most recent, Lake Chad Cultural Landscape in 2018 (UNESCO World Heritage Center, 2018).

Therefore, the present research is aimed at determining the potential roles of Sacred Natural Site(s) and Cultural Values of Biodiversity Conservation in Zuru community. The specific objectives are:

- To survey and document Indigenous Knowledge (IK) on Cultural Values of Biodiversity Conservation through SNS in Zuru community
- To identify the biological sacred entities (totems) found in Zuru community and
- To determine the current status of biodiversity in SNS (Germache).

Documentation of IK system will motivate wide use, application and easy integration of such knowledge system into other forms of knowledge systems (Shrestha *et al*., 2008; Pretty *et al*., 2009; Gandile *et al*., 2017). Furthermore, the current study is necessary for policy formulation and design of a conceptual framework for biodiversity conservation in Germache SNS and possible inclusion on the site as part of the UNESCO world heritage site.

Methodology

Geo-ethnographical description of the study area

The study was carried out at Germache (Shrine of *Crocodylus porosus*) SNS which is located in Zuru Local Government Area of Kebbi State, Nigeria. Germache is a large cultural landscape covering an area of about 84km^2 comprising of a scenic view of vegetation cover and a river flowing through. It is associated with biological totem; majorly *Crocodylus process* as well as sacred plants, including Shea tree (*Vitellaria paradoxa*) and Baobab tree (*Adansonia digitata*). It is renowned for hosting annual traditional and cultural festivities as well as a sanctuary where prayer requests are being put-forth through sacrifices.

Zuru local government is geographically located in the southeastern part of the state and boarded with highlands traversing the west side for a substantial distance and in the east is relatively flat with doted isolated granites and inselberg hills. It lies between latitude 11^0 26. 188N to 11^0 55N (11.436467 to 11.916667 Decimal Degrees) and longitude 4^0 45E to 5^0 25E (4.75 to 5.264923 Decimal Degrees) covering an area of about 653Km^2. The topography of the land is undulating with an elevation of about 350mm above sea level (Agan *et al*., 2019).

The climate of Zuru is typical to that of a tropical continental weather condition marked by a dry and wet season. The mean annual rainfall is between 1025mm/annum and 1050mm/annum, which is experienced between the months of April and October representing the wet season. The months of November to February represent the dry season. The mean annual temperature varies throughout the year between 38°C recorded in the month of April and the lowest mean temperature of 31 °C recorded in January (Agan *et al*., 2019).

The population of Zuru is about 582, 106 people arising from five (5) chiefdoms or districts namely; Dabai, Danko, Fakai, Sakaba and Wasagu. The major ethnic groups are Achifawa, Dukkawa, Fakkawa, Kambari, Katsinawa and Lelna (Lilawa) and they are generally referred to as *Dakarkari*. The main language of the people is *C'lela.* Hausa is a general spoken language as with the case in most northern states in Nigeria (KBSG, 2008 and Zome, 2013).

Kabun Menke (House of the gods of rain), *Kub-perere* (*Adansonia digitata* monumental sacred tree), *Ta'arad Wawanta* (A stone totem believed to be the remains of a woman warrior), *Ta'aru Baba*, *Riga D'koto* (*Vitellaria paradoxa* monumental sacred tree) are other SNSs located in Zuru However, Germache was

selected for the study because it is an undisturbed ecosystem that is less threatened by encroachment from farmlands and settlements as they are seen far away from the site.

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Figure 1: Map of Nigeria showing Kebbi state and the location of Zuru
Source: Google earth map

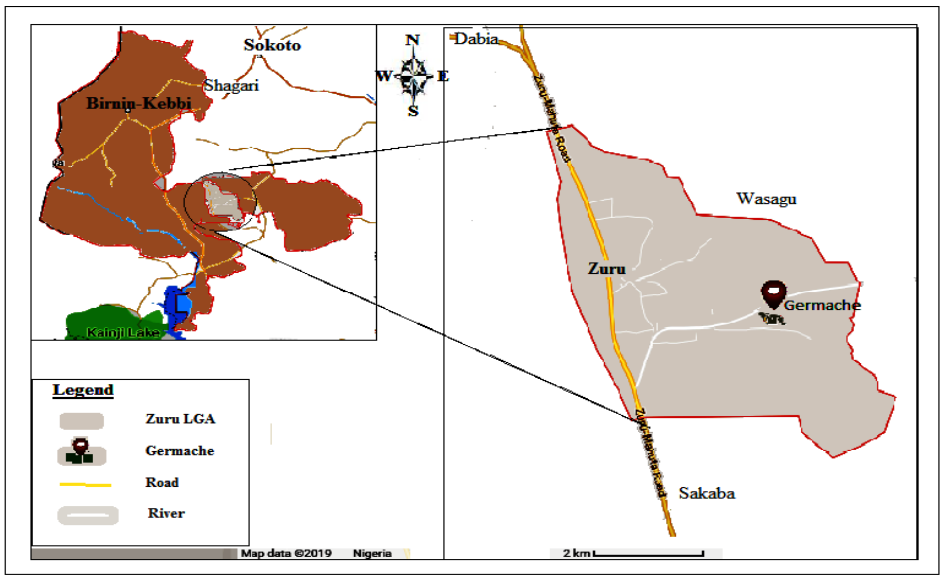

Figure 2: **Map of the Study area showing Germache: Inset is the map of Kebbi state showing Zuru LGA**
Source: Google earth map

Research Design

An ethnographic research approach including qualitative and mixed method was used in the study. Data sampling was carried out using a semi-structured questionnaire with an open-ended, but bounded question (Weiss, 1994) and having a Focus Group Discussion (FGD) (Morgan, 1997). A pilot survey was conducted at the preliminary stage of the study using the semi-structured questionnaire to collect information on the ethnographic profile and distribution of SNSs in Zuru community and also, to identify the major existing SNSs that are associated with biological totem. Participants in the survey were drawn from community members who are between ages 25 and 75 years and have spent at least 20 years in the study location. They were randomly selected and consented before administering the questionnaire. However, the total of 57 participants were successfully sampled and considered in the statistical analysis and interpretation of sampled data. The FGD involved key informants who are above 50 years of age and are custodian members of the site, including the chief priest and representative of the emir of Zuru. This group is considered to be more experienced and knowledgeable on Cultural Values (Walsh *et al*., 2013; Gandile *et al*., 2017). The FGD was centered on Cultural Values of Biodiversity Conservation in relation to the Germache SNS and covered the following subthemes;

- Cultural Activities, Rituals and Taboos Associated with Germache SNS
- Totems (of biological origin) Associated with Germache SNS
- Current Status of Cultural Values of Biodiversity Conservation in Germache SNS

The specific questions asked during the FGD are;

1. *Which occasion(s) or rites are performed in Germache?*
2. *What are the specific taboos or actions that are not allowed in Germache?*
3. *What is the significance(s) or value of such totems?*
4. *Are visitors other than indigenes allowed to visit the site?*

Data analysis

Data obtained from key informants and responses received from the FGD were analyzed and interpreted using descriptive statistics such as frequency distribution and percentage. Results are presented in tables and charts.

Results

Demographic Profile of Key informants

The demographic profile information of the key informants that were randomly sampled during the survey is summarized in table 1 and 2. All the key informants have spent at least 20 years in Zuru community.

Table 1: Demographic Profile of the Respondents

Demographic Character		Frequency (N=57)	Percentage %
Gender	Female	08	14.04
	Male	49	85.96
Age	25-34	07	12.28
	35-44	16	28.07
	45-54	19	33.33
	55-64	09	15.78
	>65	06	10.53
Occupation	Civil servant	19	33.33
	Farmer	27	47.37
	Herbalist	11	19.30
Level of Education	Primary	09	15.79
	Secondary	12	21.05
	Diploma	07	12.28
	Degree/HND	12	21.05
	Non-formal	17	29.83
Ethnic group	Achifawa	04	07.02
	Dukkawa	03	05.26
	Fakkawa	14	24.56
	Kambari Katsinawa	06	10.53
	Lelna (Dakarkari)	02	03.51
		28	49.12

Table 2: Gender and Age Range of Respondents

Variable		Frequency (N=57)	Percentage
Gender	**Age range**		
Female (n=08)	25-34	-	-
	35-44	05	8.77
	45-54	03	5.27
	55-64	-	-
	>65	-	-
Male (n=49)	25-34	07	12.28
	35-44	11	19.30
	45-54	16	28.07
	55-64	09	15.78
	>65	06	10.53

The surveyed respondents are predominantly male (85.96%) and are mostly between the age group of 45-54 (33.33%). Comparably, only 8 (14.04%) female were available for the survey (table 1 and 2). The predominant ethnic groups surveyed are Lelna (Dakarkari) and Fakkawa representing 49.12% and 24 % of all the respondents respectively. Conversely, they are from the central area of Zuruland. The minorities of the respondents' ethnic groups surveyed are Kambari (10.53%), Achifawa (07.02%), Dukkawa (05.26%) and Katsinawa (03.51%) (table1). The majority of the respondents are farmers (47.37%), followed by civil servants (33.33%) and herbalist (19.30%). Cumulatively, 70.17% of the respondents had formal education of basic primary (15.79%), secondary (21.05%), diploma (12.28%) and degree/HND (21.05%), while 29.83% had non-formal education of traditional knowledge (table1). The frequency distribution of the ethnic groups is shown in figure 3. The frequency distribution of the age groups and gender is shown in figure 4.

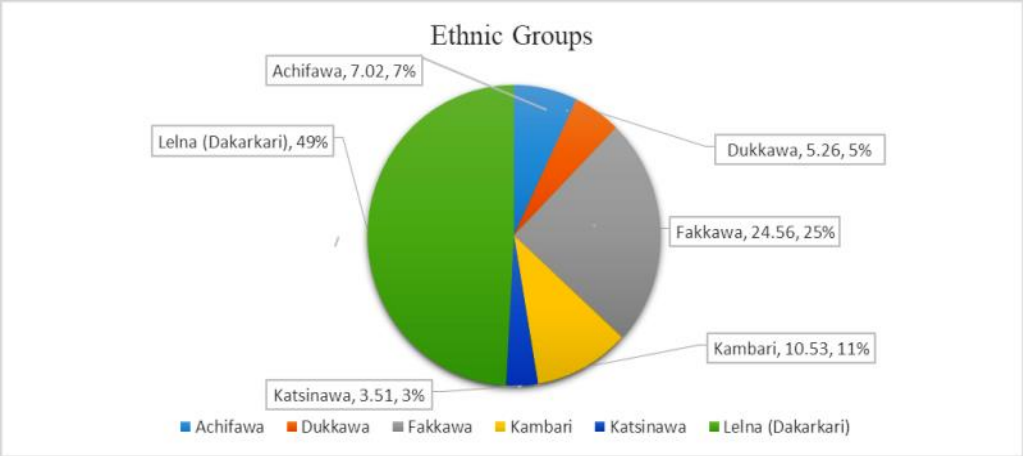

Figure 3: Pie Chart of Frequency Distribution of Ethnic Groups of the Respondents

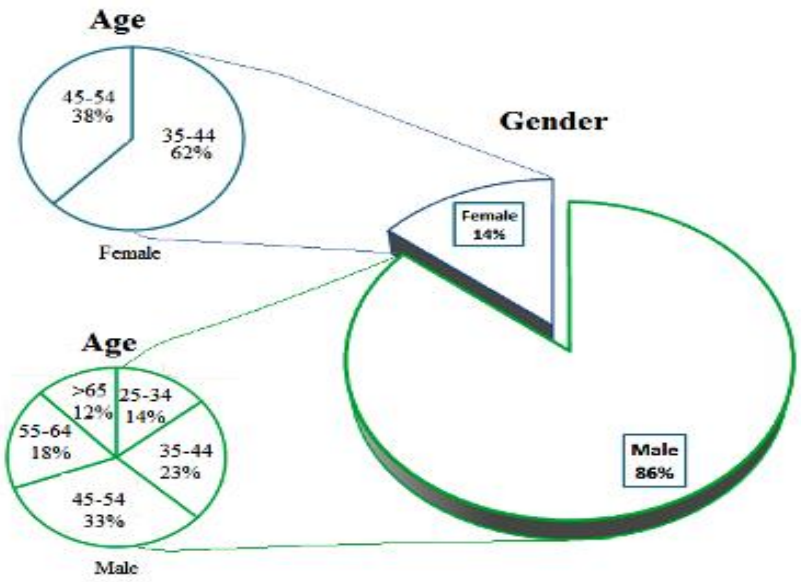

Figure 4: Pie Chart of Frequency Distribution of Age and Gender of the Respondents

Cultural Values of Biodiversity Conservation

During the interview with focus group and surveyed respondents, the following responses on Cultural Values of Biodiversity Conservation were recorded and thus interpreted and organized around the three (3) sub-themes stated in the methodology.

Cultural Activities, Rituals and Taboos Associated with Germache SNS

Responses from FGD indicated that Zuru people have a very rich and strong cultural heritage that is still practiced by most clans of the community. Cultural activities that are being performed in Germache includes; *Uhola* festival, *D'biti* festival and *Golmo* marriage ceremony. *Uhola* festival is identified as the most prominent cultural festival of all times. The festival is being celebrated annually to mark the end of the farming season at a time when Guinea-corn (*Sorghum* sp. L) is ripe for harvest. Thanksgiving and sacrifices are offered to appreciate the gods for a bountiful harvest year and for preventing diseases and natural disaster from affecting the people. However, when there is an incidence of epidemics or plague in the land, which is believed to have happened as a result of infidelity on the part of the people, the festival is canceled until the gods are appeased and a date is announced for the celebration. *D'biti* festival is similar to *whole* as it is also celebrated in a similar manner but on a different day. Unlike *Uhola*, it is normally celebrated towards the end of August when the rain is at its peak and farmers are about to harvest *Acha* (*Digitaria exilis*. L). *Golmo* on the other hand is a marital rite that is also celebrated. The occasion, usually celebrates the graduation of suitors (*Yadato*) who have served the farmlands of their respective in-laws for a period of about 7 years. However, *Golmo* is almost diminishing in the land due to religions and westernization.

Activities that are being carried out at the site on a daily basis are sacrifices, prayer and supplications for personal needs and problems.

The specific taboos or actions that are not allowed in Germache

The specific taboos or things that are not allowed in Germache as narrated by the custodians include;

1. Entering the site with shoes, wristwatch, bangles, rings and head coverings are prohibited.
2. Women are not allowed to be part of the custodian member of the site.
3. Photographs are not to be taken in the site without special prior permission granted by the site's chief priest.
4. Hunting activities and encroachment by any means (including farming, harvesting of resources or settlement) around the site are highly prohibited.
5. The custodians are not allowed to enter the site with any clothing other than a special cloth made from the skin of an animal. Also, visitors who are there to tender prayer request and sacrifice must not enter the site fully dressed.

Totems (of biological origin) Associated with Germache SNS

The major totem found in Germache is the Crocodile (*Crocodylus porosus*) (plate 1) locally known as "*Kadunaka*" in *C'lela* language. Other biological entities found within the site are also considered sacred. They include, among others, alligator lizard (*Elgaria* sp.) and fish of different species found in the stream flowing through the site.

Plate 1: A) Male *Crocodylus porosus.* B) Female *Crocodylus porosus.*

However, *Kub-perere* (*Adansonia digitata*) and *Riga D'koto* (*Vitellaria paradoxa*) are sacred trees found within Germache SNS and other monumental sacred sites located in Zuru community are also identified as totems by the respondents.

The significance(s) or value of such totems

Most of the respondents believed that the totems are spiritual beings that connect them with the gods. Therefore, they believed by offering sacrifices to put-forth their request before them, they will have their request granted. Some of these requests as recounted by the chief priest includes, among others, the following;

1. To provide protection against enemies
2. To avert plagues and calamities
3. To break the yoke of barrenness and bring fruitfulness in the home; when this request is granted, the resulting male child is named after "Germache" while the female is named "*Dada*".
4. To provide rain for their crops to thrive well
5. To boost business success.

Visitors to the site

The custodians of Germache SNS affirmed that visitors are allowed to visit on the ground of prayers and supplications only. Otherwise, permission must be granted by the emir of Zuru or his representative during excursions or tourism visits.

Current Status of Cultural Values of Biodiversity Conservation in Germache SNS

Eighty seven percent (87%) of the respondents noted that, there has been an increased in the number of Crocodile and vegetation cover of site during their most recent visit, while the remaining 13% said they have not been to the site in a long while possibly due to their diminishing beliefs on the site as a result of religion and westernization.

When asked, if there are any mechanism(s) put in place for possible transmission of knowledge of the site to younger generations? The response was yes, *Mgil'a* is an initiation rite that teaches and train young boys on the traditional knowledge of the site.

Discussion

The culture-oriented approaches implemented over the recent decades were designed to build supportive constituencies for conservation (Yamin, 1995 and Verschuuren *et al*., 2008). The importance of integrating cultural values of biodiversity management practices through SNSs cannot be over emphasized. Crocodiles conserved in SNSs contribute to the wellbeing of the host community that protects them. Ploeg *et al*., (2011) argued that crocodiles form an important part of the Filipino cultural heritage. They were seen as the guardians of the underworld: Sacred creatures that maintain societal control. It can as also be argued here that crocodiles form an important part of the Zuru culture of Kebbi state, Nigeria. It is a well preserved and respected cultural heritage of Zuruland. It can be seen engraved as a symbol of cultural heritage on the entrance gates of the emir's palace (appendix i) and inscribed as a work of art, on calabashes', clay pots and handles of hand tools and implements. Furthermore, Crocodiles are also shown to have intrinsic, economic, medicinal and ecological value (Ploeg *et al*., 2011).

Documentation of the indigenous knowledge will motivate wide use, application and easy integration of such knowledge system into other forms of knowledge systems (Shrestha *et al*., 2008; Pretty *et al*., 2009; Gandile *et al*., 2017). Therefore, as revealed by our findings, Germache SNS is a well conserved

cultural landscape that forms a significant part of the Zuru cultural heritage. *Whole* and *D'biti* festivals hosted on the site are significant cultural activities that are celebrated in appreciation to the gods. Prayers and sacrifices offered to gods in Germache are crucial for the well-being of the people of Zuruland. *Mgil'a* is traditional management code that allows the transmission of cultural values to the younger generations. The documentation of this knowledge will not only be necessary for interpretation into scientific reasoning, but will also facilitate the transmission this knowledge to a thousand generations in the future. The noticeable increase of totems and vegetation cover in the site due to taboos has further reinstated the potentials of Germache SNS to be considered for integrated conservation of biodiversity management practice in the northwestern region of Nigeria.

Conclusion

Germache SNS is a well conserved cultural landscape that is greatly valued by the people of Zuruland. It is valued as a holy ground for conducting prayers as well as a site for performing *Uhola* and *Golmo* cultural festivities. It plays an important key role in the well-being of the locals as it reaffirm and strengthen their cultural identity. The intimate connection shared between people and nature and the vast occurrence of SNSs across diverse cultures around the world is an important point of consideration when integrating conservation of biodiversity management practice within SNSs. Restricted human access and taboos associated with Germache plays an important key role in biodiversity conservation Therefor, Germache stands a greater deal for integration into the biodiversity conservation program.

Ethical consideration

Formal declaration of consent and permission was granted by the emir of Zuru before collection of data. Ethical clearance was issued by the Research Ethical Committee of Federal University Birnin-Kebbi before the commencement of the survey. The research has not in any way interfered with the privacy of the community, therefore, only allowed consents were documented.

Recommendations

Integrating cultural values into conservation initiatives will help in building local support and interest of Zuru indigenous people in sustainable biodiversity conservation. Therefore, we suggest that, Germache SNSs located in Zuru LGA of Kebbi state, Nigeria, should form an integral part of the formal policy design, planning, and management for biodiversity conservation in Nigeria and should

also, should be considered as a propose site for the UNESCO World Heritage Center. However, a follow-up taxonomic assessment of the is required to ascertain their taxonomic validity.

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