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Two Sides of the Same Coin: Formal and Informal Institutional Synergy in a Case Study of Wildlife Governance in Ghana

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ABSTRACT

There has been the call to forge a synergistic relationship between local ecological knowledge and formal institutions in the governance of natural resources. How do informal institutions complement the efforts of formal state regulation of natural resources? How does this complementation foster a regularized human–wildlife interaction? Adopting an ethnographic design, this study assesses the role of institutional complementation in natural resource governance using the case of Boabeng–Fiema Monkey Sanctuary (BFMS) in Ghana, West Africa. We purposively selected 33 informants relevant to the BFMS governance process. The study observes that the synergy between formal and informal institutions strengthens wildlife protection in BFMS and the surrounding villages. The usefulness of informal rules is enhanced if appropriately complemented with a formal institutional arrangement. Over time, it becomes necessary for informal rules to grow in dynamism to depict the principles of collaboration, inclusivity, and benefit arrangements.

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Introduction

Promoting ecological protection has been a global concern with efforts taken at varying policy levels to get nation states and non-governmental actors committed to this cause (Chapin, Kofinas, and Folke 2009). Notwithstanding, many wildlife species have become threatened (IUCN 2008) which has made wildlife governance issues receive worldwide attention (Manfredo 2015; Redpath et al. 2013). Consequently, many governments have established institutions to structure how people interact with wildlife resources (Ostrom 1990). In spite of the various formal institutional interventions, the level of protection wildlife species receive even in protected areas leaves much to be desired (Steinmetz et al. 2014; Woodroffe, Thirgood, and Rabinowitz 2005). According to Woodroffe, Thirgood, and Rabinowitz (2005), enforcement laxities could pose varying degrees of threats to wildlife including, *inter alia*, population decline, and extinction of particular wildlife

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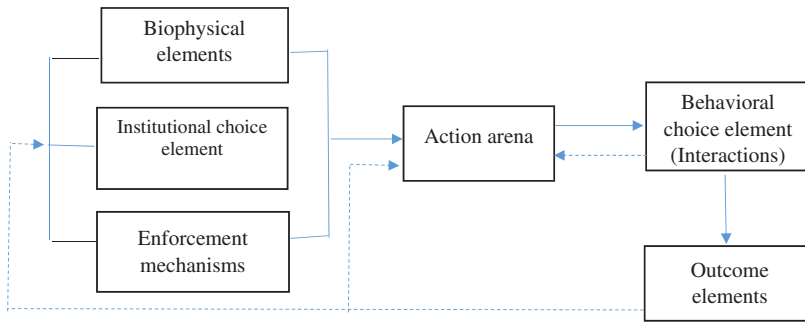


Figure 1. Adapted IAD framework. Source: Yeboah-Assiamah, Muller, and Domfeh (2017) with ideas from Ostermeier (1999), North (1991), Ostrom (2005).

species. Generally, the enforcement of wildlife rules is quite problematic; this is because such species exhibit widespread and unpredictable movement patterns across the landscape without any particular attention to their demarcated territorial limits (Kreuter, Peel, and Warner 2010). On the other hand, some groups of persons tend to contravene wildlife rules for a complex set of reasons including retaliation, monetary gains, and for food (Rastogi et al. 2010). Others do so to demonstrate their resistance to the regulations which perhaps were imposed on them by external actors (Jacoby 2001; Duffy 1999).

Evidence suggests that human threat to wildlife occurs in different contexts (Gavitt 1989; Tobias 1998; Warchol, Zupan, and Clack 2003). Even when regarded as protected species in formally recognized habitats, wildlife species in many cases remain threatened (Warchol, Zupan, and Clack 2003). This raises the issue of natural resource governance. The nature of institutions and their enforcement mechanisms have been found to be a major determinant in natural resource governance success or failure (Gibson, Williams, and Ostrom 2005; Agrawal 2003). Institutions, according to North (1991, 97) connote “the humanly devised constraints that structure political, economic, and social interaction. They consist of both informal constraints (sanctions, taboos, customs, traditions, and codes of conduct) and formal rules (constitutions, laws, property rights)”. Institutions are useful and “their relevance is more determined by the extent to which formal institutions interact with informal ones to elicit preferred patterns of behavior from societal members” (Yeboah-Assiamah, Muller, and Domfeh 2017, 5). In some rural contexts, community and traditional institutions protect wildlife species and such protection becomes more robust when adequately synergized with formal institutions (Yeboah-Assiamah, Muller, and Domfeh 2017; Negi 2010).

This study looks through at complementarities across different institutions and how they can contribute to an enriched picture to further natural resource management objectives.

In the study, we provide a specific context of a rural African community (under Ghana’s Community Resource Management Area, CREMA scheme) where management of wildlife remains robust due to the interplay of formal and informal institutional mechanisms. It illustrates an empirical case where enforcement of wildlife institutions incorporates the “visible” (formal rules and actors) and “invisible” (gods, traditional priesthood¹ and local taboos) as well as other contextual incremental developments. This study assesses the governance and institutional synergy of BFMS; the enforcement

mechanisms of formal and informal institutions; the role of institutional complementation. We draw lessons from the BFMS case.

Conceptual Framework

The study adapted the institutional analysis and development (IAD) framework to discuss institutionalism and human–wildlife interaction in BFMS. The framework (Figure 1) entails five key elements and an action arena.

Figure 1 explains that institutional analysis entails a “biophysical element” (in this study, monkey species) which interacts with an “institutional element” plus enforcement mechanisms.² The interaction of “the biophysical element”, institutions, and their application defines the behavior of people toward the natural resource. The nexus between formal and informal arrangements, their enforcement together with particular benefit systems largely determine the way community members regard the resource in question. Informal institutions are generally not codified into law and involve customary rights or rules handed down to generations to manage natural resources within a specific space (Otsuka and Place 2002). In this study context, they comprise the traditional governance structures and cultural belief systems. Formal institutions connote those prescriptions and processes which are generally codified, assume the status of laws and may be applicable at multiple levels (Lauth, 2000).

Methods

Study Context

Providing an empirical case of complementarity between informal and formal governance structures, we adopt the case of the Boabeng–Fiema Monkey Sanctuary (hereafter BFMS) in Ghana. BFMS has become one of the tourist attractions in Ghana, where black and white *colobus* (*Colobus vellerosus*) and *mona* monkeys (*Cercopithecus campbelli*) co-exist somewhat nonbelligerently with people in the Boabeng and Fiema settlements as far back as the 1830s. The BFMS forest is approximately 4.98 km², but the core forest which is 1.92 km² receives formal protection and is the dedicated habitat for the monkey species.

The monkeys are regarded as “offspring of the gods”, hence are protected by traditional taboos and historic cultural beliefs. BFMS attained a sanctuary status in 1975 following the establishment of formal laws and arrangements to complement the prevailing informal arrangements for the sustainable management of monkeys. Boabeng and Fiema are two nearby settlements in Nkoranza District in the transitional zone of Ghana, approximately 230 km from Accra, the country’s capital. They are rural communities with a combined population of approximately 1,900 people. The climatic and physical characteristics make the communities suitable for farming activities, with over 80% of the working population largely engaged in agriculture. Subsistence farming is practiced and the surplus products sold for additional income. The BFMS presents a highlight of Ghana’s Community Resource Management Areas (CREMA) scheme adopted by the Wildlife Division of Forestry Commission in Ghana. CREMA presents a community-wide natural resource management project where local structures are

encouraged to anchor the management of off-reserve lands which remain ungazetted. In this arrangement, local communities are tasked to prudently manage natural resources and to optimize community-wide benefits. Officially emanating from Ghana's 1994 Forest Policy, CREMA is a model through which the Wildlife Division transfers authority and management responsibilities to local communities to self-organize local structures for wildlife management.

Research Design

The article adopted an ethnographic design. Ethnography involves a systematic inquiry of the philosophies, practices, and social belief systems including peculiar phenomenon of sizeable societies (Denzin and Lincoln 2011). To Reeves, Kuper, and Hodges (2008), the process usually involves participation and observation over a period of time. This design enables for exploratory, descriptive, and explanatory account of other cultures and peculiar phenomenon (Atkinson and Hammersley 1994). The use of social relationships and intermediaries was a crucial asset that enabled the researchers to attain unhindered access to relevant stakeholders. Ethnographic design requires "...the proper protocol for building of healthy relationships...the use of intermediaries has practical uses in establishing rapport with research participants and placing the researcher within a circle of relations" (Wilson 2008, 129). Consequently, two indigenous members helped facilitate the data gathering process; they introduced the researchers to participants such as the traditional priests, chiefs, and other related participants who willingly agreed to participate in the study. The study employed purposive and snowball sampling processes to identify 33 key informants who were deemed to have the requisite information on institutional enforcement in the Boabeng–Fiema Monkey Sanctuary. Participants in the study involved chiefs and traditional priests of the Boabeng–Fiema Communities, past and present wildlife officers of the Sanctuary, unit committee members, key actors of the BFMS Management Board, tour guides, district-level government actors, farmers, and selected community members. The main instruments of primary data gathering involved informal and focus group discussions, in-depth interviews, and narrative enquiries. Each of these interactions lasted for an average of 45–60 min. Some of the discussion questions posed involved: *how do the laws, rules, and regulations of government and the by-laws of the district-level government operate vis-à-vis the traditional rules and taboo system? Do you see a nexus? Do they ever conflict? Do they partner each other? How do you see the working relationship between wildlife officers and local community actors? To what extent do you think the people comply with formal rules? How do you also think the taboos and culture structure people's behavior? How are the informal rules monitored?* All proceedings with participants were later transcribed into Microsoft Word which has been organized into suitable themes, and adopted for the discussions. The study analyzed data through inductive thematic analysis based on issues that emerged from the study observations. A main advantage of the design is that through observations and engaging oneself with the community, the researchers were able to explore and accumulate sufficient insights (Reeves, Kuper, and Hodges 2008). It helped the "researchers to explore and link social phenomenon and related narratives which *prima facie* may appear to have no interlinkage" (Yeboah-Assiamah, Muller, and

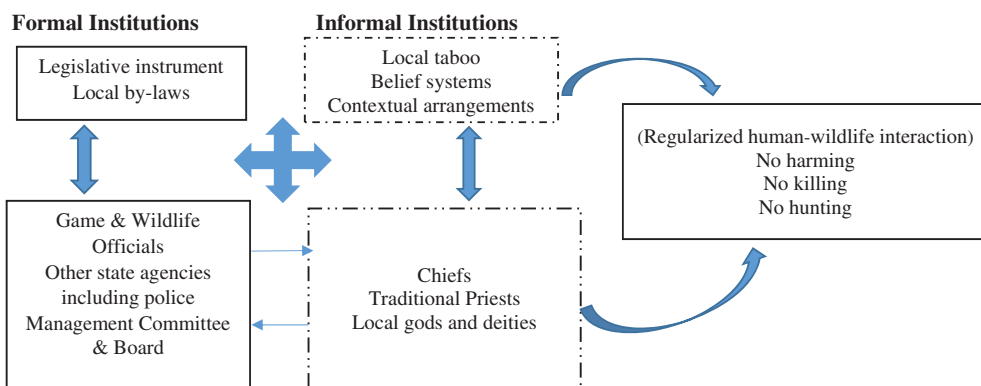


Figure 2. Governance and Institutional model of BFMS. Source: Authors' construct.

Domfeh 2018, 4). The difficulty in generalizing research findings is the main limitation of this research design.

Results

In this section, the study uses elements of the adapted Institutional analysis and Development (IAD) framework (*institutional elements, enforcement mechanisms, behavioral choice, and outcome elements*) to present the study results.

Institutional Elements

Governance Structure and Arrangements

The BFMS was declared as a sanctuary in 1975 which was also a beginning of its institutional complementation. This was in an attempt to provide adequate protection to monkey species which had come under attack due to excessive hunting orchestrated by a new religious sect. Members of the Savior Church hunted monkeys to supplement their diets and to demonstrate the supremacy of their God. In turn, they defied local beliefs and practice of monkey conservation (Yeboah-Assiamah, Muller, and Domfeh 2017). Since this period, national and district-level regulations have provided legitimacy to regulate activities in BFMS. Deviance that is reported to Game and Wildlife officers is punishable by law. The formal institutions have therefore reinforced the level of protection given to the wildlife species and have also included many different actors and stakeholders in the governance process. The governance structure of BFMS has evolved from a hitherto archetypical traditional (community-centric) system toward a more collaborative approach embracing the concept of "collaborative natural resource governance" (CNRG). CNRG integrates different stakeholders to govern natural resources (Yeboah-Assiamah, Muller, and Domfeh 2017). The main actors in the contemporary governance regime of BFMS comprise Wildlife Division of the Forestry Commission, district-level government, a management committee, and board. It also involves the traditional actors including chiefs and traditional priests of both Boabeng and Fiema communities. Other remote stakeholders include the police, international organizations,

and scientific community who get drawn to BFMS because of its sanctuary status and uniqueness.

In [Figure 2](#), the first element with solid outline captioned “formal institutions” illustrates the formal laws and regulations relevant to wildlife governance of BFMS. These include legislative instrument and regulations such as Wildlife Conservation Regulation of 1971 which lists the *colobus* and *mona* monkeys as wholly and partially protected respectively; 1994 Forest & Wildlife Policy; and 2012 revised Forest & Wildlife Policy. The formal regulations also include local by-laws that ban hunting and farming in the core forest, where the BFMS is located. These by-laws are sanctioned by the Nkoranza North district-level government where the BFMS is located. For example, the BFMS Constitution which is enforced by the Management Committee forbids hunting, cutting of trees, and bush burning within the core forest. This is also legitimated by a 1975 local by-law which among other things seeks to offer protection to trees within the core forest. However, same cannot be said of forest and trees that fall outside the 1.92 km² area core forest. While monkeys within and outside the core forest receive protection from harm, the forest itself does not. This suggests that formal regulations and restrictions alone do not guarantee effective resource protection in BFMS. On the other hand, the taboos and informal governance institutions alone could not have provided a formidable system for sustainable monkey conservation in BFMS due to the attacks launched by in-migrants and the Savior Church in the 1970s (Yeboah-Assiamah, Muller, and Domfeh 2017).

The second element also with solid outline illustrates the various state agencies and actors who help to enforce the formal rules. The practice of the formal rules and actors/agencies is to ensure a regularized human–wildlife interaction and conservation of the monkeys including their natural habitat. However, the realization of this overarching goal is reinforced by robust traditional governance and belief system captioned “informal institutions” which are illustrated with broken lines ([Figure 2](#)). The taboos and local belief systems as well as traditional actors and governance arrangements play a catalytic role in the sustainable management of the monkey species. The essence of a synergy between formal and informal institutions is to help bridge people from native or migrant background to a common overarching goal of effective resource protection. This reflects a narrative by a traditional priest who explained:

in the past the gods were active and solely in charge of protecting the animals; currently the government has come on board to help reinforce this role. But the community members know that it is either for the gods or the government. People will not like to harm them in order to avoid the wrath of either the gods or government

The narrative above demonstrates the strength associated with a synergy between local taboos and formal institutions in BFMS.

Incentives and Benefit-Sharing Provisions in BFMS

Communities and actors are incentivized with a benefit–sharing system in BFMS. The system recognizes the different stakeholders, structures, and communities relevant to the governance of the resource. The revenues generated from the Sanctuary through eco-tourism are shared in such a way that none of the relevant governance entities is

left out. First, the total revenue is shared into two: 40 and 60%. The 40% share is further converted into a 100% (gross sum to be disbursed) whereby 10% is given to the chief and traditional priest in Boabeng, another 10% is given to the chief and the traditional priest of Fiema, 35% each is given to Boabeng and Fiema communities whilst those families in Boabeng on whose lands are covered by the forest inhabited by monkeys receive the remaining 10%.

The other 60% is shared among other key actors and institutions. The wildlife division and the district-level government takes 20% each, a 5% share is given to the Nkoranza Traditional Council, another 5%, is shared among the other seven fringe communities closer to both Boabeng and Fiema³ while 10% is assigned to a BFMS development fund.

Enforcement Mechanisms (Enforcing Formal and Informal Institutions in BFMS)

Key Actors and Enforcement of Formal Institutions

With reference to the governance model in Figure 2, this section discusses how each actor contributes in the enforcement process toward effective human–wildlife interaction and species protection.

Wildlife officers

The contemporary governance regime employs a local resident Wildlife officer and other supporting officers in the BFMS community. The task of formal wildlife officers is to make sure no individual or group disrupts the natural habitat of the monkeys; that there is no firing of gun in the forest and that the animals are kept safe from attacks. They are also in charge of the arrest and processing of offenders at the police station to be charged and prosecuted. Due to the relatively homogenous relations among indigenous community members and family ties, it is quite difficult for informal indigenous actors to exert stringent punishment when an elder or royal member violates the rules. This point was well explained by a traditional priest:

But as a result of the relational and brotherliness which exists in the community, if someone destroys the monkey habitat or any unfortunate incident against monkeys, people will come and beg, claiming the person is either their son, or grandfather or other relative. So with this, you will just perform some rituals else a lot of negative consequences will occur.

The presence of the Wildlife Division has been an effective external check on hunting and timber extraction that would have been difficult to regulate if left to the traditional governance structures alone. This was explained by one of the study participants:

As for the wildlife officer they derive their powers from government and are mostly external to the community, they have no such worries which some of us may encounter... They are expected to protect the monkey habitat when there is any infringement or anything illegal. They are the ones representing the government and can make arrest. Their role is to supervise and not to succumb.

This point was corroborated by another key participant who submitted that:

... .. this they do without recourse to much sentiments from community members since the latter know it is the officer's responsibility (as mandated by government) and not borne out of bad-faith or callousness.

Nkoranza district-level government

The governance and institutional structure of BFMS has been consolidated by local by-laws legitimated by the district-level government which makes their enforcement considerably easier. It has helped provide the enabling legal framework. For example, the 1975 by-law seeks to protect monkeys and the core forest against hunting, logging, and bushfire. Additionally, provisions in BFMS Constitution and resolutions by the Management Committee receive legitimacy from the district-level government to become enforceable and punishable. The district-level government is a partner in the infrastructural development of the BFMS area to promote eco-tourism. It is consulted on other issues concerning the BFMS but does not play direct managerial role in the governance process.

Local management board and committee

General decisions concerning the BFMS is entrusted to the local management board, whose membership includes traditional actors, state actors, members from Boabeng, Fiema, and seven allied communities. These communities' territories have been encroached by wildlife from BFMS. The board is tasked with promoting harmony among all the nine resource communities and working together toward the sustainable governance of wildlife conservation. The board also sensitizes community members on wildlife and habitat conservation and plays intermediary role between the local community and government wildlife officer. The ownership of the BFMS is essentially vested in the chiefs. They have delegated the management role to a five-member Management Committee that conducts the day-to-day activities at the Sanctuary. The membership comprises two representatives each from both from Boabeng and Fiema and a district-level government member.

A traditional chief explained:

What happened was, 'nananom' (chiefs and elders) couldn't directly handle.... So nananom have appointed a management committee ... Boabeng and Fiema chiefs nominate one member each; the traditional priest or community nominates one member each; and the district-level government member of both communities.

This committee drives the governance process, helps to optimize socio-economic benefits from the sanctuary, and helps to boost its eco-tourism prospects. The committee manages moneys derived from eco-tourism and rents from the sanctuary guesthouse.

A chairman of a unit committee explained:

The role of management is to safeguard the monetary aspect of the sanctuary; if any guests come; if there is any problem; it's the management

In our interaction with the former chairman of the Management Committee, he explained:

The essence of the Management Committee was to open up the governance system and to make it more community-centric and as open as possible, the local BFMS Constitution makes everything streamlined

Actors and Enforcement of Informal Institutions

Chiefs. Chiefs in the traditional governance system play a crucial role in the protection of wildlife in BFMS. Each of the two communities has a robust chieftaincy system headed by a chief with his council of elders (traditional cabinet) who help to enforce community by-laws and regulations toward the protection of monkeys. In each community, the chief remains a main enforcer of local taboos that put a ban on harming of monkeys. The chiefs delegate their powers to a five-member local management committee (see Local Management Board and Committee section). Any other governance arrangement including local management committee and board reports to the local chief who wields the final authority.

This was explained by a unit committee head that:

The actual power is with the chiefs, even if the monkeys belong to the gods, the land is for the chiefs and more importantly the monkeys are largely inhabited on the land of Boabeng community.

Anyone who contravenes any of the regulations on the monkeys is brought before the chief who makes pronouncements on the appropriate punishment. In most cases, the accused person is asked to buy items including a sheep to be slaughtered to appease the gods. One of the traditional priests explained:

... so the person who harms the animal must appease the gods by bringing sheep and eggs for the rituals ... anyone who even accidentally kills the animal would buy a coffin and carry it. You will organize a funeral for the animal and everyone within the community would know that you killed the animal.

Traditional Priesthood system

Both Boabeng and Fiema communities have their own traditional priest in charge of monkeys. These priests are believed to take divine instructions from the gods and advise the chiefs accordingly.

One of the priests explained:

we listen to the gods. Whatever someone does, the gods communicate to us. So anything you do we will know ... and if the animal dies we have the ritual we perform

The priest in collaboration with the chief is “responsible for the enforcement of the taboos in each of the two communities. He is able to interpret the gods’ wishes” which he expresses to the chief (Yeboah-Assiamah 2018, 210). Traditionally, the monkeys are offspring of the gods and the traditional priests of Boabeng and Fiema communities carry out traditional rites to appease the gods whenever there is an unfortunate incident of a monkey found dead. This includes burial rites for the monkey and, in the past, initiating the appropriate funeral rites. In some situations, these priests are believed to receive revelation from the gods on specific things to be done in relation to the

monkeys and at times are given prior knowledge of events related to monkeys. At other times, the priests may contact another more powerful “foreign” priest to get additional insights into interpretation of an observed phenomenon.

Role of the gods. Throughout Ghana and many African societies, people regard some environmental components such as river bodies and lakes; rocks and mountains; trees and animals as lesser gods who are assumed to possess supernatural powers (Yeboah-Assiamah 2018, 210). In BFMS, both Boabeng and Fiema possess a female river goddess and male god, respectively, called *Daworo* and *Abodwo*. They are believed to be parents of the monkeys and provide supernatural protection for them. One of the respondents explained the parental role of the gods:

... So we agreed at some point in time on the elimination of dogs at the instruction of the gods... The history of the monkeys revolves around two shrines, one in Fiema and other in Boabeng... And the history is that at night dogs used to bark at Abodwo God of Fiema each time he visited his wife Daworo Goddess in Boabeng. But the main reason is that the gods indicated that the dogs used to disturb him en route to his wife ...

Additionally, the gods reveal “what is hidden” to the priests and spiritually offer protection to the monkeys. In that regard, even in the absence of wildlife officers, people hesitate to harm the monkeys. Those individuals who appeared recalcitrant in the past received divine sanctions from the gods which in contemporary time serves as warning and narratives. For instance, it was revealed that:

There was a woman in Fiema, who pounded hot pepper and mixed it with food so that the monkeys would eat in her home ostensibly to punish monkeys and to scare them from her house, after eating with their forelimbs and using same to scratch their face and eye, it itched them bitterly ... today the woman has also gone blind at Fiema

There have been varied incidences of unexplained or supernatural occurrences shared by community members of how persons who defiled the sanctity of the informal taboos received mysterious sanctions from the gods.

Action Arena

Joint Management and Complementarity

The BFMS demonstrates some successes in joint and complementary management. The chiefs, local management committees and boards, and state actors meet periodically to carry out joint decisions for mutual compliance. The issue of management committee and board at BFMS is in line with the principle of corporate governance in business where there is a board and management even though the company may have a CEO or owner. A wildlife officer who had been pivotal in BFMS governance process explained how the collaboration plays out:

... there is the general management board and the two traditional bodies. There are representatives from each of the communities but it is when there is a major issue that all the chiefs come for the meetings.

There is a cordial relationship between the wildlife agency and the traditional chiefs. The kind of rancor usually reported in the literature to a greater extent is nonprevalent

in the BFMS. The actors *work* in partnership with one another in the execution of their tasks. There is mutual respect for one another. The acting chairperson of the management committee intimated:

There is a cordial working relationship between the traditional governance system and the wildlife officers ... this is because both are geared toward a similar outcome, tradition says do not kill monkeys and wildlife officers say do not destroy the monkey habitat. so they are both in the same direction ... here there is no conflict between the state agencies and traditional institutions.

If any individual offends, traditionally you have to pay some money and sheep to appease the gods and maybe the wildlife officers will process you for arrest and prosecution. Even if one is arrested, he/she has to go through such tradition to appease the gods after he/she has been discharged.

A wildlife officer explained:

... ... But for the collaboration and cooperation, the forest and monkeys will not have existed”

Despite the existence of management committee and collaboration, the Chiefs wield veto powers since they own the land and the resources. There are subtle power struggles not between the formal and informal governance actors but between the two traditional authorities. However, because the benefit-sharing system and roles of each actors are clearly stipulated in a BFMS Constitution, this subtle inter-community rancor does not impede the governance process. A way of dealing with this subtle inter-community rancor has been to give equal representation to both Boabeng and Fiema communities in the governance processes and benefit-sharing schemes. Any activity or project carried out in Boabeng is duplicated or adapted in Fiema. This representation is seen in the membership of the tour guides as well as management board and committee

Behavioral Choice and Outcome Elements

Unlike what appears to be a general rancorous interaction between humans and wildlife elsewhere (Beisner et al. 2015; Manfredro 2015), the situation in BFMS is unique as research participants agreed that community members generally do not hunt, haunt, or harm monkeys. A retired wildlife officer explained:

I have served in over five other national parks in the country; in those places there is nothing to deter community members and poachers (from trespassing). The wildlife system is different elsewhere, but here it is collaborative and the local systems in place reduce the task and burden of the wildlife officer.

Largely Troublesome, Yet Highly Protected: A Paradox?

Ideally, the problems posed by monkeys to community members in BFMS would have warranted harsh retaliation as occurs elsewhere, but the enforcement mechanisms help protect them. Some monkeys cause trouble in the communities. A queen mother⁴ explained:

The monkeys are good but very bad, stealing and destruction. Just take a look at the building with red marks (pointing to some dirty marks soiled on her wall by monkeys) ... I have changed my roofing sheets for about 4 times (monkeys jump on them to create tiny holes) ... if food is even on fire, bread, kenkey (local diet made of maize dough) they will take and just eat in front of you when they sit on the roofing sheet or mango tree to spite you ...

The report from the queen mother is corroborated by researchers' observations in the field, as monkeys were seen in the homes of people during the mornings and evenings, which demonstrates a relatively regularized human-wildlife interaction. During focus group discussions, participants unanimously agreed that while both native and migrant community members did not harm the monkeys, reasons for their action may differ. For instance, one migrant explained:

I don't hail from this community, although I may have my doubts about these myths, I don't want any government litigation so I obey the rules ... even if officers are not around, the people themselves will report you should you trespass ... government laws will deal with anyone who offends

A different reason was provided by a native participant who submitted:

monkeys are children of the gods, this is what our elders have told us and we cherish it, the development of Boabeng-Fiema is a result of eco-tourism income brought forth by monkeys ... we value tradition and we don't harm the monkeys and won't allow anyone to do so.

From the researchers' interaction with respondents, it became evident that both formal and informal institutions are *two sides of the same coin* working to ensure protection of monkeys in the BFMS. The synergy between these two has proven very formidable to elicit compliance from community members resulting in few reports of abuses.

Discussion

From the BFMS case, lessons on institutional synergy and conditions supporting appropriate institutional complementation in natural resource governance are discussed below:

Strength in Complementation of Formal with Informal Institutions

The BFMS governance arrangement depicts a model where the strengths of formal and informal institutions have been synchronized and enforced in a coordinated manner (Figure 2). Generally, governments have overall responsibility for promoting sustainability of their wildlife resources. In situations where there are local community governance provisions for reinforcing this role, government's responsibility is reduced but not fully ceded (Arts et al., 2014; Vodouhê et al. 2010; Roe, Pathak, and Gutierrez 2000). As seen in Figure 2, the informal institutions including the traditional priesthood, chieftaincy structures, and mythology surrounding monkeys work together to support effective monkey conservation. Elsewhere, Wilkie, Carpenter, and Zhang (2001) observe how resource constraints affect exclusively formal management of wildlife referred to as

“paper parks” which fail to accomplish the overall objective of wildlife conservation. Protected areas, as the paper referred to as “paper parks”, fail to accomplish the overall objective of wildlife conservation.

An overview study contends that “... at the institutional and legal level, most countries, especially African countries, have a satisfactory framework for protected areas. However, despite an abundance of laws and institutions, the framework is often ineffective and less strictly enforced for management of protected areas” (Iritié 2015, 202). Before the mid-1970s, BFMS was managed exclusively by informal institutions and taboos. A “complex crisis” nearly resulted as the Savior Church and its new converts hunted monkeys for food and also to demonstrate the supremacy of their God (Yeboah-Assiamah, Muller, and Domfeh 2017). In this case, the role of formal institutions has been useful primarily in targeting this group to ensure protection of the monkeys. This case illustrates how the institutional element together with the action arena determines the behavior of community members toward the monkeys.

Institutional Consolidation

The BFMS case study provides lessons to local resource communities on the potential benefits to be gained by liaising with the appropriate state and national agencies in order to legitimize and enforce their operations and decisions. While mythology forbids causing harm to monkeys in BFMS, this rule is also consolidated by national and local by-laws which is reinforced by contextual community arrangements. For example, while the gods of Boabeng-Fiema forbid dogs as domestic animals in the community, this rule has been included in the BFMS Constitution supported by a local by-law which bans dogs as domestic animals in the area. Such complementarity of formal and informal institutions is laudable as dogs are known to be predators to wildlife (Lessa et al. 2016). In a related study in northern Ghana, Millar (2003) contends that the traditional informal institutions and belief systems possess major conservation value but only become more robust when bolstered by modern democratic elements.

Reinforcing Informal Institutions for Regularized Human–Wildlife Interaction

The case demonstrates that the role of chiefs, traditional priests, and gods cannot be underestimated in the enforcement of wildlife institutions in BFMS. Most community members believe in the traditional religion and this informs their interaction with monkey species at BFMS. This importance has been underscored by Fargey (2011) in his study that showed 75% of the people would hunt the monkeys for bushmeat if not for the taboo prohibiting their killing (see also Attuquayefio and Gyampoh 2010). This suggests that the informal institutions offer protection to monkeys in BFMS. The value of local religious narratives and how they structure human–wildlife interaction corroborates an observation by Hartberg, Cox, and Villamayor-Tomas (2016) on the influence of supernatural monitoring and sanctioning in natural resource governance.

Generally, cultural belief systems, local taboos, and myths have shown to be useful in directing and regulating people’s interaction with natural resources (Colding and Folke 2001; Negi 2010). The findings from the study corroborate an observation in Lushoto,

Tanzania by Mowo et al. (2016, 120) where “when ... conventional and indigenous by-laws enforcement mechanisms (were) adopted, incidences of abuse of natural resources were reduced by as much as 50% in some of the study sites”. The foregoing demonstrates the efficacy of traditional governance structures and institutions which brings together formal and informal institutions and actors (chiefs, priests, and state actors) to jointly manage the resource.

Synergy in Complementation

The enforcement complementarities of both formal and informal institutions depict a “synergetic approach” which supports a robust outcome that is more than the sum of both parts (Maani and Cavana 2007). In other words, the product of the interaction between formal and informal institutions provides more effective protection for monkeys in BFMS. The governance arrangement ensures that there is no institutional vacuum as local arrangements through the management committee and BFMS Constitution help operationalize the formal and informal processes which are coordinated. In their Inter-Institutional Gap (IIG) framework, Rahman et al. (2017) highlights the relevance of mediation between formal and informal institutions to adopt rules at various levels and scales to pragmatically regulate the management of natural resources. The institutional arrangements in BFMS are structured such that there is cordiality and cooperation between formal and informal actors. There is a local management board and committee that play an intermediary role between the local community and government wildlife officers to foster cooperation. Elsewhere, enforcement of formal rules is problematic and wildlife officers may even experience the wrath of community members (Vaughan and Long 2007); in extreme cases, they become exposed to intimidation and death threats from poachers (Messer 2010).

Dynamism in the Institutional Model

Inclusivity and stakeholder involvement

Although there are formal laws and mythology that ban hunting of the monkey species and destruction of the core forest, the community governance structure and informal arrangement continues to grow in dynamism to meet exigencies of time. This is also because managing wildlife comes with ecological, social, and political complexities (Rastogi et al. 2012). This calls for a more eclectic approach that hinges on governance and social inclusion. The involvement of seven nearby communities in the management board and decision making processes of BFMS suggests governance dynamism and institutional development to optimize protection of monkeys and forest. This development corroborates an observation by Horowitz (1998) in Sarawak, Malaysia where indigenous structures and institutions were further developed to liaise with state institutional arrangement amidst contextual developments toward more effective wildlife management. It is instructive for natural resource conveners to strive for ways of involving actors when the need arises. Rahman et al. (2017) explained that the need for collaborative institutional arrangements capable of promoting flexibility, participation and inclusivity remains essential for sustainable natural resource governance.

Benefit-sharing measures to incentivize

Using an agreed upon sharing criteria, stakeholders are incentivized with income accruing from monkey eco-tourism. Although protection of monkeys in BFMS is primarily intrinsic, as society becomes more complex and diverse such benefits that come with monkey protection will help to rationalize traditional values underpinning natural resources protection. In addition to their traditional belief in monkey protection, community members derive tangible benefits from projects funded by monkey eco-tourism. More so, the other seven nearby communities who have been incorporated in the benefit-sharing scheme augment the enforcement of wildlife protection rules. Communities which live with and are active in the management of natural resources ought to be part of any rent that comes from that management effort. In other words, laws and regulations require actors to implement and advance the protection of wildlife resources. People's efforts should be rewarded. People will effectively manage wildlife and other resources if appropriate incentives are provided for the effort (Lu, Chou, and Yuan 2005). In their wildlife tolerance model, Kansky, Kidd, and Knight (2016) contend that costs incurred from harboring wildlife should not significantly outweigh the benefits people derive from them. Stakeholder engagement is necessary to deliberate on relevant matters of mutual concern.

A dominant theme in this study has been the effective enforcement of wildlife rules in BFMS. This suggests that the interaction of formal and informal rules coupled with contextual dynamics (such as inclusivity; institutional dynamism and consolidation; and benefit-sharing) promotes effective enforcement and positive human-wildlife relationships.

Implications

Synergy between formal and informal institutions to manage wildlife resources can provide protection for wildlife resources from members of different facets of society—whether native or migrant. Hajer (2003) contends that “in an inherently dynamic society the legitimacy and efficacy of particular set of institutional arrangements might be challenged by new developments”. In BFMS however, the in-migrant or so-called “modern thinker” who might have otherwise shown disregard for tradition is compelled by the existing formal institutions whilst the “traditional native thinker” who otherwise might have ignored the state regulations is compelled by informal institutions. Although informal institutions are critical to natural resource governance, their relevance becomes robust when complemented with a formal institutional arrangement. The combined effect of formal and informal institutions cannot be overemphasized. The institutional choice element, the enforcement mechanisms, and the action arena help determine behavior of people and groups. From the BFMS case, the institutional choice element has evolved over time.

Community resource management needs to evolve into a more collaborative system to involve multiple actors to enhance effectiveness of the institutional enforcement. The study highlights that a simplistic sense of community-based natural resource management does not exist per se. It is imperative to forge alliance to help provide a regulatory framework that includes a supportive state and local agencies as well as non-state actors.

It is within this context that Ojha et al. (2016) argue on the need to *delocalize* communities in community resource management. More importantly, resource managers need to forge closer ties with surrounding communities to pursue synergistic relationships toward more effective resource governance (Ostrom, 1996).

This case shows that one way to find the converging points between formal and informal institutions is by formalizing informal rules through some democratic elements and promoting inclusivity and sharing benefits. As society becomes more complex and diverse, ensuring effectiveness in natural resource institutions calls for collaborative governance where emergent stakeholders are included and also made part of the benefit--sharing arrangement. Future studies should test the relationship between social dynamism, institutional compliance, and institutional evolution.

Notes

1. A traditional priest serves as a mediator between the spirit (lesser gods) and the living. They perform their rites in a shrine.
2. A *biophysical element* connotes peculiar common pool resource which a community is endowed with and has manifold stakeholders (Yeboah-Assiamah, Muller, and Domfeh 2017). *Institutional element* entails the interaction of formal regulations and state structures on the one hand, and informal institutions on the other hand (North 1991). *Enforcement mechanism* involves the strategies used in implementing the institutional provisions (Yeboah-Assiamah, Muller, and Domfeh 2017).
3. The monkeys were initially only in Boabeng and Fiema communities but over time widened their range to the other seven nearby communities.
4. A queen dowager who is the mother of the reigning chief. She occupies a prominent role in chieftaincy and serves as repository of knowledge for the chief.

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References

- Agrawal, A. 2003. Sustainable governance of common-pool resources: Context, methods, and politics. *Annual Review of Anthropology* 32(1):243–62. doi: [10.1146/annurev.anthro.32.061002.093112](https://doi.org/10.1146/annurev.anthro.32.061002.093112).
- Arts, Bas., Jelle.Behagel, Esther.Turnhout, Jessica.De Koning, and Séverine.Van Bommel. 2014. A practice based approach to forest governance. *Forest Policy and Economics* 49:4–11. doi:[10.1016/j.forpol.2014.04.001](https://doi.org/10.1016/j.forpol.2014.04.001).
- Atkinson, P. & Hammersley. M. (1994). Ethnography and participant observation. In *The Sage handbook of qualitative research* ed. N.K. Denzin, and Y.S. Lincoln, 248–260. Thousand Oaks, CA: Sage Publications.
- Attuquayefio, D. K. S., and S. Gyampoh. 2010. The Boabeng-Fiema Monkey sanctuary, Ghana: A case for blending traditional and introduced wildlife conservation systems. *West African Journal of Applied Ecology* 17(1):1–10.

- Beisner, B. A., A. Heagerty, S. K. Seil, K. N. Balasubramaniam, E. R. Atwill, B. K. Gupta, P. C. Tyagi, N. P. S. Chauhan, B. S. Bonal, and P. R. Sinha. 2015. Human–wildlife conflict: Proximate predictors of aggression between humans and rhesus macaques in India. *American Journal of Physical Anthropology* 156(2):286–94. doi: [10.1002/ajpa.22649](https://doi.org/10.1002/ajpa.22649).
- Chapin III, F. S., G. P. Kofinas and C. Folke, eds. 2009. *Principles of ecosystem stewardship: Resilience-based natural resource management in a changing world*. New York, NY: Springer Science & Business Media.
- Colding, J., and C. Folke. 2001. Social taboos: “invisible” systems of local resource management and biological conservation. *Ecological Applications* 11(2):584–600. doi: [10.2307/3060911](https://doi.org/10.2307/3060911).
- Denzin, N. K., and Y. S. Lincoln. 2011. *The sage handbook of qualitative research*. Thousand Oaks, CA: Sage Publications.
- Duffy, R. 1999. The role and limitations of state coercion: Anti-poaching policies in Zimbabwe. *Journal of Contemporary African Studies* 17(1):97–121. doi: [10.1080/02589009908729640](https://doi.org/10.1080/02589009908729640).
- Fargey, P. J. 2011. Assessment of the Conservation Status of the Boabeng-Fiema Monkey Sanctuary. Report to the Flora and Fauna Preservation Society.
- Gavitt, J. D. 1989. Unlawful commercialization of wildlife parts. In *Transactions of the North American Wildlife & Natural Resources Conference*, vol. 54, 314–23.
- Gibson, C. C., J. T. Williams, and E. Ostrom. 2005. Local enforcement and better forests. *World Development* 33(2):273–84. doi: [10.1016/j.worlddev.2004.07.013](https://doi.org/10.1016/j.worlddev.2004.07.013).
- Hajer, M. 2003. Policy without polity? Policy analysis and the institutional void. *Policy Sciences* 36(2):175–95. doi: [10.1023/A:1024834510939](https://doi.org/10.1023/A:1024834510939).
- Hartberg, Y., M. Cox, and S. Villamayor-Tomas. 2016. Supernatural monitoring and sanctioning in community-based resource management. *Religion, Brain & Behavior* 6(2):95–111. doi: [10.1080/2153599X.2014.959547](https://doi.org/10.1080/2153599X.2014.959547).
- Horowitz, L. S. 1998. Integrating indigenous resource management with wildlife conservation: A case study of Batang Ai National Park, Sarawak, Malaysia. *Human Ecology* 26(3):371–403. doi: [10.1023/A:1018752115074](https://doi.org/10.1023/A:1018752115074).
- IUCN. 2008. Mammals on the IUCN Red List Accessed. <http://www.iucnredlist.org/mammals> (accessed June 25, 2016).
- Iritié, B. G. J. J. 2015. Economic growth and biodiversity: An overview conservation policies in Africa. *Journal of Sustainable Development* 8(2):196–208.
- Jacoby, K. 2001. *Crimes against nature: Squatters, poachers, thieves, and the hidden history of American conservation*. Berkeley, CA: University of California Press.
- Kansky, R., M. Kidd, and A. T. Knight. 2016. A wildlife tolerance model and case study for understanding human wildlife conflicts. *Biological Conservation* 201:137–45. doi: [10.1016/j.biocon.2016.07.002](https://doi.org/10.1016/j.biocon.2016.07.002).
- Kreuter, U., M. Peel, and E. Warner. 2010. Wildlife conservation and community-based natural resource management in southern Africa’s private nature reserves. *Society & Natural Resources* 23(6):507–24. doi: [10.1080/08941920903204299](https://doi.org/10.1080/08941920903204299).
- Lauth, H.J.. 2000. Informal Institutions and Democracy. *Democratization* 7(4):21–50. doi:[10.1080/13510340008403683](https://doi.org/10.1080/13510340008403683).
- Lessa, I., T. C. S. Guimarães, H. de Godoy Bergallo, A. Cunha, and E. Vieira. 2016. Domestic dogs in protected areas: A threat to Brazilian mammals? *Natureza & Conservação* 14:46–56. doi: [10.1016/j.ncon.2016.05.001](https://doi.org/10.1016/j.ncon.2016.05.001).
- Lu, D. J., Y. F. Chou, and H. W. Yuan. 2005. Paradigm shift in the institutional arrangement of protected areas management in Taiwan — a case study of Wu-Wei-Kang Waterfowl Wildlife Refuge in Ilan. *Environmental Science & Policy* 8(4):418–30. doi: [10.1016/j.envsci.2005.03.013](https://doi.org/10.1016/j.envsci.2005.03.013).
- Manfredo, M. J. 2015. Essays on human–wildlife conflict 10 years after the Durban world parks congress: An introduction. *Human Dimensions of Wildlife* 20(4):285–8. doi: [10.1080/10871209.2015.1007181](https://doi.org/10.1080/10871209.2015.1007181).
- Maani, K. E., and R. Y. Cavana. 2007. *Systems thinking, system dynamics: Managing change and complexity*. Auckland, NZ: Prentice Hall.

- Messer, K. D. 2010. Protecting endangered species: When are shoot-on-sight policies the only viable option to stop poaching?. *Ecological Economics* 69(12):2334–40. doi: [10.1016/j.ecolecon.2010.06.017](https://doi.org/10.1016/j.ecolecon.2010.06.017).
- Millar, D. 2003. Blending systems of governance: Towards food security. *COMPAS Magazine* 9: 17–9.
- Mowo, J., K. Masuki, C. Lyamchai, J. Tanui, Z. Adimassu, and R. Kamugisha. 2016. By laws formulation and enforcement in natural resource management: Lessons from the highlands of eastern Africa. *Forests, Trees and Livelihoods* 25(2):120–31. doi: [10.1080/14728028.2016.1159998](https://doi.org/10.1080/14728028.2016.1159998).
- Negi, C. S. 2010. The institution of taboo and the local resource management and conservation surrounding sacred natural sites in Uttarakhand, Central Himalaya. *Journal of Biodiversity* 2(8):186–95. doi: [10.1080/09766901.2010.11884717](https://doi.org/10.1080/09766901.2010.11884717).
- North, D. C. 1991. Institutions. *Journal of Economic Perspectives* 5(1):97–112. doi:[10.1257/jep.5.1.97](https://doi.org/10.1257/jep.5.1.97).
- Ojha, H. R., R. Ford, R. J. Keenan, D. Race, D. C. Vega, H. Baral, and P. Sapkota. 2016. Delocalizing Communities: Changing Forms of Community Engagement in Natural Resources Governance. *World Development* 87:274–90. doi: [10.1016/j.worlddev.2016.06.017](https://doi.org/10.1016/j.worlddev.2016.06.017).
- Ostrom, E. 1996. Crossing the great divide: Coproduction, synergy, and development. *World Development* 24(6):1073–1087. doi:[10.1016/0305-750X\(96\)00023-X](https://doi.org/10.1016/0305-750X(96)00023-X).
- Ostrom, E., 2005. *Understanding Institutional Diversity*. Princeton, NJ: Princeton University Press.
- Ostermeier, D.M. (1999). The role of institutions in ecosystem management. In Ecosystem management for sustainability: Principles and practices by a regional biosphere reserve cooperative, ed. J.D. Peine, 457–472. USA: CRC Press.
- Ostrom, E. 1990. *Governing the commons: The evolution of institutions for collective action*. New York: Cambridge University Press.
- Otsuka, K., and F. Place. 2002. *Land tenure and natural resource management: A comparative study of agrarian communities in Asia and Africa*. Baltimore: Johns Hopkins University Press.
- Rahman, H. M. T., A. S. S. Ville, A. M. Song, J. Y. T. Po, E. Berthet, J. R. Brammer, N. D. Brunet, L. G. Jayaprakash, K. N. Lowitt, and A. Rastogi. 2017. A framework for analyzing institutional gaps in natural resource governance. *International Journal of the Commons* 11(2): 823–53. doi: [10.18352/ijc.758](https://doi.org/10.18352/ijc.758).
- Rastogi, A., G. M. Hickey, R. Badola, and S. A. Hussain. 2012. Saving the superstar: A review of the social factors affecting tiger conservation in India. *Journal of Environmental Management* 113:328–40. doi: [10.1016/j.jenvman.2012.10.003](https://doi.org/10.1016/j.jenvman.2012.10.003).
- Rastogi, A., R. Badola, S. A. Hussain, and G. M. Hickey. 2010. Assessing the utility of stakeholder analysis to protected areas management: The case of Corbett National Park, India. *Biological Conservation* 143(12):2956–64. doi: [10.1016/j.biocon.2010.04.039](https://doi.org/10.1016/j.biocon.2010.04.039).
- Redpath, S. M., J. Young, A. Evely, W. M. Adams, W. J. Sutherland, A. Whitehouse, and R. J. Gutiérrez 2013. Understanding and managing conservation conflicts. *Trends in Ecology & Evolution* 28(2):100–9. doi: [10.1016/j.tree.2012.08.021](https://doi.org/10.1016/j.tree.2012.08.021).
- Reeves, S., A. Kuper, and B. D. Hodges. 2008. Qualitative research methodologies: Ethnography. *BMJ* 337:512–4. doi: [10.1136/bmj.a1020](https://doi.org/10.1136/bmj.a1020).
- Roe, D., N. Pathak, and I. Gutierrez. 2000. Evaluating Eden: Exploring the myths and realities of community-based wildlife management; series overview (No. 8). IIED.
- Steinmetz, R., S. Srirattaporn, J. Mor-Tip, and N. Seuaturien. 2014. Can community outreach alleviate poaching pressure and recover wildlife in South-East Asian protected areas? *Journal of Applied Ecology* 51(6):1469–78. doi: [10.1111/1365-2664.12239](https://doi.org/10.1111/1365-2664.12239).
- Tobias, M. 1998. *Nature's keepers: On the front lines of the fight to save wildlife in America*. New York: John Wiley & Sons.
- Vaughan, C. and A. Long. 2007. Bushmeat, Wildlife Management and Good Governance: Rights and Institutional Arrangements in Namibia's Community-Based Natural Resources Management Programme. In *Bushmeat and livelihoods: Wildlife management and poverty reduction* ed. G. Davies and D. Brown, 125–139. New Jersey, USA: Blackwell Publishing Ltd.

- Vodouhê, F. G., O. Coulibaly, A. Adégbidi, and B. Sinsin. 2010. Community perception of biodiversity conservation within protected areas in Benin. *Forest Policy and Economics* 12(7): 505–12. doi: [10.1016/j.forpol.2010.06.008](https://doi.org/10.1016/j.forpol.2010.06.008).
- Warchol, G. L., L. L. Zupan, and W. Clack. 2003. Transnational criminality: An analysis of the illegal wildlife market in Southern Africa. *International Criminal Justice Review* 13(1):1–27. doi: [10.1177/105756770301300101](https://doi.org/10.1177/105756770301300101).
- Wilkie, D. S., J. F. Carpenter, and Q. Zhang. 2001. The under-financing of protected areas in the Congo Basin: So many parks and so little willingness-to-pay. *Biodiversity and Conservation* 10(5):691–709. doi: [10.1023/A:1016662027017](https://doi.org/10.1023/A:1016662027017).
- Woodroffe, R., S. Thirgood, and A. Rabinowitz. 2005. The impact of human-wildlife conflict on natural systems. In *People and wildlife: conflict or coexistence?*, ed. Woodroffe et al., pp. 1–12. Cambridge; New York: Cambridge University Press.
- Yeboah-Assiamah, E. 2018. *Theory and practice of governance collaboration: Institutional assessment in collaborative natural resource governance*. Doctoral dissertation, Stellenbosch University, Stellenbosch. <http://scholar.sun.ac.za/handle/10019.1/104982> (accessed on 4th July, 2019).
- Yeboah-Assiamah, E., K. Muller, and K. A. Domfeh. 2017. Institutional assessment in natural resource governance: A conceptual overview. *Forest Policy and Economics* 74:1–12. doi: [10.1016/j.forpol.2016.10.006](https://doi.org/10.1016/j.forpol.2016.10.006).
- Yeboah-Assiamah, E., K. Muller, and K. A. Domfeh. 2018. Complex ‘crisis’ and the rise of collaborative natural resource governance: Institutional trajectory of a wildlife governance experience in Ghana. *Environment, Development and Sustainability* 20(5):2205–24. doi: [10.1007/s10668-017-9985-x](https://doi.org/10.1007/s10668-017-9985-x).