

What Does Conservation Mean for Women? the Case of the Cantanhez Forest National Park

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Abstract

Community-based conservation programmes need to engage the support of all its members. Gender is a key component in shaping attitudes about conservation, and lack of attention to gender differences in perceptions can work against the aims of community-based conservation actions and initiatives. We present a study of the obstacles to women's participation in conservation strategies associated with Cantanhez Forest National Park (CFNP), in Guinea-Bissau, West Africa. Field-work took place in CFNP over two years, 2007-2008. Five women-only focus group interviews (N=47 participants) were conducted to understand the perceived effects of CFNP's establishment on women's daily activities, livelihoods and future expectations. The findings revealed that the women felt the Park was responsible for malnutrition in the communities due to damage of crops by wildlife. Although they were promised compensation, most of the farming households are still waiting for reimbursements for crop damage. Women expressed an unwillingness to directly participate in conservation efforts related to CFNP, but they believed that park researchers could help them to improve their lives.

Keywords: Gender, livelihoods, conservation attitudes, human-wildlife interface, focus group methods

INTRODUCTION

Rural women living in poor countries are often more vulnerable to the effects of extreme poverty than men (Ellis 1999; Moser 2007). This may be due to a variety of cultural

and socio-economic factors— they may be less educated than men (UNDP 2006: 9–12; UNDP 2012: 21–25); have lower social status; lack access to or ownership of land; are excluded from decision-making processes and are expected to play a submissive role in the community (Ellis 1999; Moser 2007). Men may control income from sale of cash crops and harvests of commercially valuable natural resources (Sunderland et al. 2014). Thus, women and men may differ in the way they perceive and interact with their surrounding natural resource contexts (Flinton 2003; Kanji 2003; Mukadagi and Nabalegwa 2007; Stringer et al. 2007; Bandiaky 2008).

Many of these cultural and socio-economic factors also influence the way rural men and women relate to wildlife conservation activities and initiatives (Gadd 2005; Stringer

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et al. 2007; Casanova et al. 2012). Rural women's engagement as farmers or gatherers of non-timber forest products place them in the front line in terms of their knowledge of the physical environment and natural resources and potential threats to their sustainability (Ehrlich et al. 2012; Sunderland et al. 2014). However, in many impoverished contexts of Africa, rural women's perceptions of environmental issues and conservation programmes has been poorly explored. There is a greater reliance on men's testimonies (e.g. Andrade and Rhodes 2012; Bitanyi et al. 2012; Hazzah et al. 2013), or focus on African agro-forestry practices and their sustainability and land ownership (e.g. Kiptot et al. 2011; Ehrlich et al. 2012; Sunderland et al. 2014; Roy 2015). Women may not participate in conservation activities either because they are excluded from doing so by vested interests (Flinton 2003; Gillingham and Lee 2003; Kalibo and Medley 2007; Mukadagi and Nabalegwa 2007; Bandiaky 2008; Reed and Christie 2009) or because they do not feel empowered to speak out in their cultural contexts (Mehta and Kellert 1998; Lee 2004; Chambers 2007; Moser 2007; Meinzen-Dick et al. 2014). This lack of understanding is highly problematic for conservation projects.

This article presents a case study of women's attitudes towards conservation from the West African state of Guinea-Bissau. The study is part of a larger project that aims to protect Western chimpanzees (*Pan troglodytes verus*), one of the most endangered species living inside Cantanhez Forest National Park (here after CFNP). Considered one of the most important 200 eco-regions of the world due to its biodiversity richness and global rarity of its habitat type, the CFNP (lat: 11°16'42.78"N; long: 14°54'42.30"W) was established in 2007 to preserve remnant forest patches containing unique Guinean biodiversity. Little is known about the chimpanzee population size in Guinean territory (Gippoliti and Dell'Omo 1996; Gippoliti and Dell'Omo 2003; Gippoliti et al. 2003; Casanova and Sousa 2007; Sousa et al. 2011). Chimpanzees are more common in CFNP than elsewhere in the country (Gippoliti et al. 2003). Along with chimpanzees, there are at least nine other non-human primate species—the threatened Guinea baboon (*Papio papio*), red Western colobus (*Procolobus badius temminckii*), putty-nosed monkey (*Cercopithecus nictitans*), lesser spot-nosed monkey (*Cercopithecus (c.) petaurista*), green monkey (*Chlorocebus sabaues*), black and white Western colobus (*Colobus polykomus*), Mona monkey (*Cercopithecus (m.) campbelli*), Sooty mangabey (*Cercocebus atys*), and the bush baby (*Galago spp. senegalensis*). The protected area also contains an array of other species, from duikers to porcupines (IBAP 2007).

Two main ethnic groups live inside CFNP's borders. The *Nalú* people (*Nalú*=one of the two ethnic groups living inside CFNP's borders)—representing 10% of the population - are traditionally considered the “owners of the ground” (Rocha 1997; Frazão-Moreira 2001; Nóbrega 2003; Temudo 2009). Each *Nalú* household had the right to possess a farm that should be large enough to feed all its members (Temudo 2009). However, the *Balanta* (*Balanta*=the other ethnic group living inside CFNP's borders) are now, the largest ethnic

group (62%) residing in the area. This group came from the north during the 1920s in search of places where they could pursue subsistence cultivation of rice (Handem 1986; Imbali 1992; van Gent and Ukkerman 1993; Temudo 2009). The *Nalú* people initially started growing fruit trees (e.g. oranges, mangos and bananas) in their plots for their own consumption, and began harvesting palm oil. During the 1960s, they set up larger cashew plantations for earning cash income. The *Balanta* people have no explicit concept of private property (Handem 1986). Land is for farmers as long as they farm, and rice plantations belong to the whole village. Men exchange rice for other farm supplies or palm oil with *Nalú* villagers.

Livelihoods inside the CFNP depend mainly on subsistence agriculture. Hunting and the consumption of bushmeat were regular activities prior to the establishment of the protected area, but bushmeat contributed relatively little to caloric intake, despite being an important source of protein (Hoffman et al. 2012). Although illegal, all primates and many antelope species are still actively hunted and traded as bushmeat, with the exception of the chimpanzee which is considered inedible by local inhabitants (Costa et al. 2013). Women do not engage in hunting, extraction of large timber, or trade in cash crops and bushmeat—these are men's activities. Since women's subsistence farming and household routines are demanding throughout the year, the time available for involvement in other activities is very limited.

According to the Constitutional Law of Guinea-Bissau (ANP 1996: 6), all Guinean citizens are equal and should not encounter discrimination, regardless of gender. However, political, economic and livelihood equality between men and women is far from being a reality (UNDP 2006: 9–12; UNDP 2012: 21–25). Compared to their male counterparts, women in rural Guinea-Bissau have fewer chances to attend school; cannot inherit farms or other properties; do not participate in decision-making processes within their communities; are more likely to live in extreme poverty; and usually die younger (UNDP 2006: 9–12; GDDHT 2009: 11–13).

The main aim of our study was to understand whether women were willing to participate in the conservation strategies that were designed for CFNP. We focused on women's perceptions of the risks and benefits associated with living in this protected area in order to explore opportunities for engaging them in conservation efforts (Lee 2004; Martino 2008). We identified three aspects of the CFNP that could affect attitudes towards conservation—1) the gazetting of the CFNP and the role of community and local actors in developing economic alternatives for subsistence activities that are now forbidden in the park; 2) the limitations imposed by the CFNP on villagers' daily lives, including the impact of wildlife on agriculture in the surrounding areas; 3) the future expectations and role of social researchers of CFNP in improving their lives.

MATERIALS AND METHODS

Field-work was carried out in the Tombali region around CFNP from 2007 to 2008 as part of a larger and on-going research

programme (Casanova and Sousa 2007). We conducted interviews with five women-only focus groups (N=47 participants) from five different villages inside the Park. Each village focus group comprised of 10 to 12 women from both, *Balanta* and *Nalú* ethnic communities. Informant ages varied from 15 to 63 years old. While some of the younger women had received primary school education, most older women had never attended school. Issues related to their daily activities, the establishment of CFNP, livelihoods and future expectations were raised as formative topics with the focus groups and guided by researchers through unstructured discussions (Table 1).

The women's focus groups were conducted in short sessions, roughly half an hour long, so that these would not conflict with normal daily activities. In order to make participants feel comfortable and initiate discussion, broad issues were raised as general questions, such as "what does the park mean to you", "tell us about any problems you experience in your daily life", "what kind of actions would help make your lives better", "what do you think about our work". The last question was addressed only at the end of the meeting to assess how they viewed us in relation to improving their situation. Although we were aware of the potential impact of our presence on the participants' responses, the statements we obtained from the discussions were triangulated between focus groups and checked against the data obtained from earlier quantitative surveys conducted with heads of households (Costa 2011).

Most of the women who attended the meetings knew us from previous visits to the CFNP and were familiar with our

research team. Participants did not receive payments for being in the focus groups, and hence were free to express their views without fear of any loss of income or future revenue. We also addressed these broad questions to participants individually so that all of them had an opportunity to speak and express their personal opinions without feeling constrained by the presence of others. This mixed interview approach allowed for expression of differences and agreement and encouraged a general willingness among the women to engage with the researchers.

The focus group meetings were scheduled so that women could attend without having to interrupt their work for a long period or disturb the village routine. Nevertheless, establishing contact with women was not easy. We conducted interviews in September which coincided with the month of Ramadan and was also the time of the year when women start planting rice. We decided to visit the villages after waiting for the women to arrive home from farming activities and then, after a brief chat with the head of the women's committee in the village, started discussions with the whole group on an informal basis. All focus groups were recorded with consent obtained prior to commencing the meetings. Although they were hesitant at the beginning, during the process of the discussion, the women became more talkative about their life experiences particularly as the meetings excluded men. A Guinean female assistant (not from the local area), fluent in both Portuguese and Creole, served as translator between us and the women. She assisted us during the transcription process to provide details that she could not quickly transcribe *in situ*.

Village chiefs were contacted beforehand to inform them about our research aims and to obtain their consent to collect data. The governmental authority in charge of all protected areas in Guinea Bissau Republic, Instituto da Biodiversidade e das Áreas (IBAP) also allowed us to conduct the present study and ethical clearance for women's focus groups was obtained prior to fieldwork from the researchers' university.

Recorded discussions were entered into ATLAS.ti (version 6.2), where two levels of analyses were made—1) textual and 2) conceptual. Relations were constructed between statements, using a protocol of associations between ideas—1) The textual level analysis focused primarily on the most repeated words, issues and ideas mentioned by people during the focus group discussions. In the first stage, the recordings/transcriptions were split into small portions; each portion was related to different items (themes) addressed during the meetings. Themes were major activities or daily life problems while sub-issues were based on the most often repeated ideas, objects or constructs – later transformed in codes - in relation to a theme (e.g. forest, farming, famine, palm oil, rice, reserve, animals damaging crops, chimpanzees and so on). Codes were linked with the phrases and, when necessary, memos and comments were linked with both phrases and themes to subsequently refine the networks and their interpretation. 2) For the conceptual level of analysis, codes were linked with each other depending on the relations between words and ideas that emerged during the discussions (e.g., association, contradiction, being part of another idea, having the same meaning and so on). These

Table 1
Summary of the major topics and points of discussion raised during focus groups

Topic I: Perceptions about the village	
Points of discussion	Main life constraints
	Health problems
	Educational problems
Topic II: Perceptions about the forest and the animals	
Points of discussion	Knowledge about the Park
	Feelings about the Park
	Changes brought by the CFNP establishment
	Important forest resources used by the household
	Problems caused by the Park and its wildlife
Topic III: Economic information	
Points of discussion	Major activity
	Major source of food
	Major source of money
	Major expenses
Topic IV: Hunting and diets	
Points of discussion	Presence of hunters in the village
	Frequency of hunting activities
	Species hunted
	Bushmeat destination (trade/own consumption)
Topic V: Expectations towards the conservation programme	
Points of discussion	Expectations about the future
	Expectations about our (social researchers) work

links among codes were used to build the models (networks) of ideas that provided a perspective on how people perceived the topics that we discussed and potentially provide insight into how they mentally constructed their environmental context.

When using qualitative thematic methods, sample size depends on the amount of new information the researcher can obtain in each discussion/conversation. As soon as the researcher perceives that s/he is not adding new information to the set of data, the so-called “saturation” level is reached - i.e., regardless of how much more data one collects, the kind of information attained will be virtually the same and data collection can stop (Douglas and Craig 2007). In our study, the five female focus groups (N=47) reached saturation within the 30-minute discussion period, suggesting that these were sufficient in length.

All coding of themes and constructs was done by hand by one researcher (SC) to maintain reliability across the five groups. Since the focus group scripts had to be translated from Portuguese to Creole and then translated back to Portuguese and finally to English, the coding was done by the one researcher who was involved throughout the process so as to minimise potential errors in multiple translations. Our analysis is qualitative and based on network visualisation, allowing themes to emerge from the combined discussions with all the women’s groups.

RESULTS

In the CFNP villages, women were responsible for housekeeping, raising children and feeding their families. Their agricultural and gathering activities were mainly of a subsistence nature, and according to their testimonies (see below), represent physically demanding and time consuming labour. Women usually do not extract forest resources, but collect fuelwood and low value non-timber products nearby their houses. By contrast, men hunt, extract timber, and trade in cash crops and bushmeat.

Every family has its own farm and women grow similar products. Rice is the most important subsistence crop in the CFNP villages. Traditionally, people grew their rice in *bolanhas de tarrafe* or mangrove swamps near rivers. However, due to progressively shorter rainy seasons and rising sea levels, the ocean has been inundating the rice plantations and ruining the crops. As an attempt to solve the problems of inundation, the women have begun using methods such as forest slash and burn clearings to grow *mpampam* or dry field rice, which is less sustainable and less productive. Several kinds of fruits (e.g., bananas, papayas, mangos, cashew nuts and oranges) are grown for sale. Cassava, peanuts, beans and sweet potatoes are not regarded as cash-crops and are used as dietary substitutes when rice is scarce. Apart from some home-made soap and handicraft artefacts (mainly baskets), there was no diversification of economic activities beyond subsistence.

Four basic themes emerged from the focus group discussions related to the aspects of enquiry pursued by our study. Table 2 presents each of the sub-issues qualitatively associated with these themes.

Table 2
Summary of the themes used in the Atlas.ti analysis that emerged from focus groups

Themes	Sub-issues	Total number*
Women’s daily life	Farming and its intrinsic and extrinsic limitations (Physical effort, farming and crop-damage)	82
	Financial constraints (Palm oil, no money and rice price speculation)	8
	Famine (Cassava and Ramadan)	52
		71
National Park establishment	Wildlife pests (Chimpanzees, baboons, monkeys in general and porcupines)	70
	Limitations related with the National Park establishment (Reserve, no poaching or hunting, more animals, more bush, no compensation plan or alternatives)	33
Livelihoods		64
	Food	70
	Money (Earning/collecting and spending money)	65
Future expectations		52
	Attitudes toward the researcher (Getting help from researchers)	8
		8

*Total number of phrases that included the codes A, B, C, D or E

Women’s daily activity constraints

Women highlighted farming as their biggest problem (Figure 1).

According to them, agricultural activities required extreme physical effort, but did not deliver equivalent benefits in terms of crop yields. Wildlife proximity to fields was also seen as a limitation, and one that has worsened since the establishment of CFNP. During our meetings, “crop-damage” (*sensu* Peterson et al. 2010) was mentioned 19 times as a major threat to agricultural success. Both physical effort and “crop-damage” appeared to be causally associated with financial constraints and famine in the thematic networks.

Since the physical effort needed for farming does not correspond to either the potential profits (when traded by men) or to the food value that women obtain from this activity, access to cash was stated as a major problem. Generally, the amount of rice harvested cannot last a family for the whole year. Especially during the rainy season prior to planting, *Nalú* women have to buy rice to feed their families and, in order to obtain cash for purchases they produce palm oil, a highly-valued ingredient in Guinean cuisine. As such, palm oil is directly exchanged for rice with *Balanta* farmers (men), but the latter’s rice supplies are not always enough to meet all *Balanta* and *Nalú* needs. Thus, during the hungry season, traders and local shop (boutique) owners speculate and inflate the rice prices for extra income. Inflation and the need to buy rice appeared to be correlated and were both causally associated with women’s views of their major life constraints.

We make palm oil, sell it and buy rice. (...) the problem is not a lack of rice; the thing is that they want to raise the prices. We go to the boutique and they say to us that the rice is finished. But this is just to raise the prices. (...) You take the palm oil with you, but it is the rice's owner that decides the price (pers. comm. 2008)

Rice price speculation and crop losses due to animals were both causing, at least perceptually, malnutrition. Women believed that the (false) market rice scarcity and wildlife were responsible for people starving.

“Our problem is getting food for us and for our children. It’s a big sacrifice. Right now we have a big problem: there is no rice in Iemberém and we are having cassava. We cannot stand cassava anymore.” (pers. comm. 2008)

(Focus group 2, Madina)

Women mentioned famine as a major concern (Figure 2). However, famine, as constructed by these women in their discussions, may be more culturally, than biologically or ecologically related to crop failure. Rice is the basis of Guinean

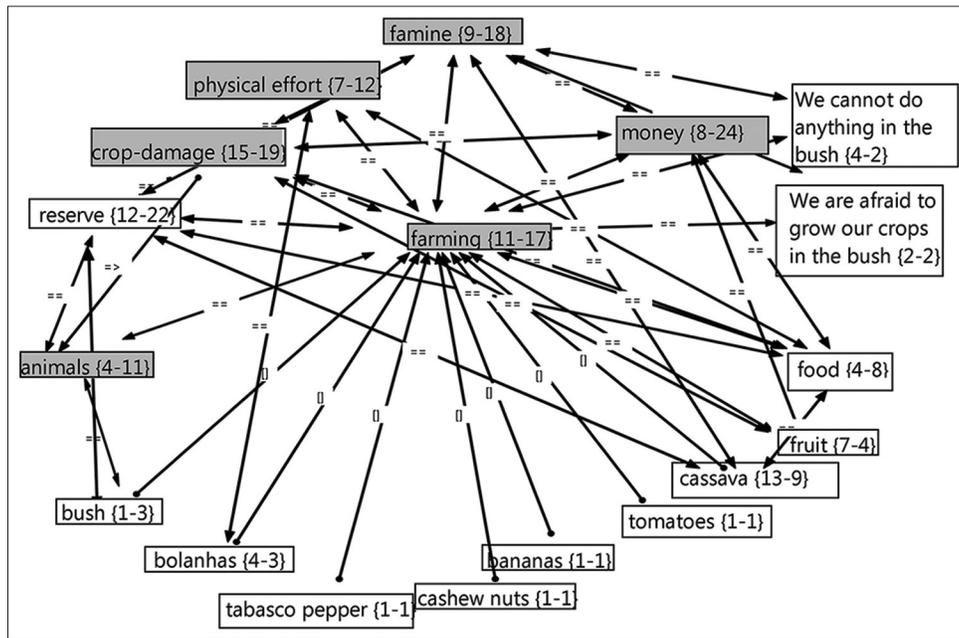


Figure 1

Farming network according to women's perceptions. For this and all subsequent figures representing networks extracted in Atlas.ti, the signs in the arrows represent: == is associated with; [] is part of; => is cause of; <> contradicts; is a is a. First number in the {} represent the number of links with other thematic codes; the second value represents the number of times the theme was referred in the meetings. Labels in grey represent the themes most mentioned in the meetings

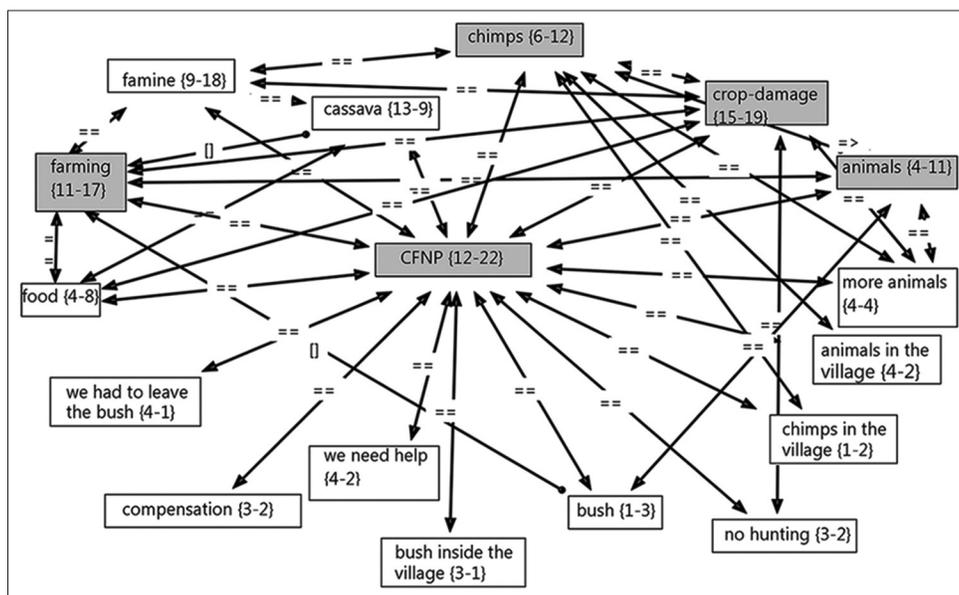


Figure 2

Famine network according to women's perceptions

cuisine – as is palm oil – which means that when women lack rice in their meals, they may perceive this as absence of food despite having alternative staples like cassava, beans or maize to avert starvation. Famine was also mentioned in relation to Ramadan. This Islamic celebration and period of fasting was perceived by women as a period of scarcity that they could not affect or alter. Fasting is imposed by a superior entity – Allah – as a sacrifice. Guinean Muslim women did not see the religion dimension as a personal choice but rather suggested that some features related to Islamic observance were externally imposed and compulsory, and this produced some sense of hardship or hunger.

During our conversations with the focus groups, health and education were never spontaneously mentioned, but arose only when raised by the researcher. These issues were perceived as less immediate problems during the season when the interviews were conducted, although malaria was highlighted as a major health concern. In addition, education was seldom raised as an important issue, since getting children to school and having enough money to afford school fees was perceived as a minor livelihood constraint by comparison to hunger.

The CFNP according to women’s perspective

In all focus groups, CFNP was identified as a threat to people’s welfare and, ultimately, to their survival (Figure 3).

Codes (phrases) related to the protected area and major livelihood constraints were simultaneously present in 54 out of 64 phrases. Since its establishment, CFNP has imposed a new range of rules that people are supposed to respect. Restrictions on hunting, resource gathering and farming activities inside the borders of the CFNP were mentioned synonymously with the increasing numbers of animals associated with protection. Women stated that the bush (natural habitat, consisting of regenerating areas of former farmlands and forest patches)

had now become so much more widespread that this almost swallowed human settlements, and allowed animals to “invade” villages and croplands.

“The bush brought us a never-ending range of problems. First, the reserve; now we have monkeys, baboons, chimpanzees ... There are plenty of animals that do not have food in the bush anymore. (...) They are having our crops. The bush is reserved. Nobody is helping us. This year, chimpanzees ruined our farms. There is nothing left.” (pers. comm. 2008)
(Focus group 2, Madina)

Wildlife was viewed as at least partly (if not in the majority) responsible for women’s negative perceptions about CFNP. According to them, primates, and especially chimpanzees, were the “worst animals”.

Chimpanzees were regarded as dangerous pests; they were seen as responsible for crop losses in fruit farms (especially important for cash crop income) and for attacking women and children (Figure 4). During our meetings, women referred to chimpanzees six times, and four of these were associated with crop losses. They attributed intent to chimpanzees damaging crops. Chimpanzees were described as astute animals that were aware of the new rules established by the CFNP. Women believed that the chimpanzees knew that men could no longer shoot them and that they could safely venture into farms and steal food. During focus groups, we never had any evidence of a positive attitude toward chimpanzees. Women commonly focused blame on chimpanzees for low crop yields, reduced cash-crop income, exacerbating the physical risks of working in the fields, and even potentially with causing famine. However, it was unclear whether chimpanzees represented a focal point for all animal-related livelihood problems (e.g. McLennan and Hill 2012) or were a genuine livelihood risk.

Women suggested that close proximity to wildlife, particularly to chimpanzees, and increase in crop losses would

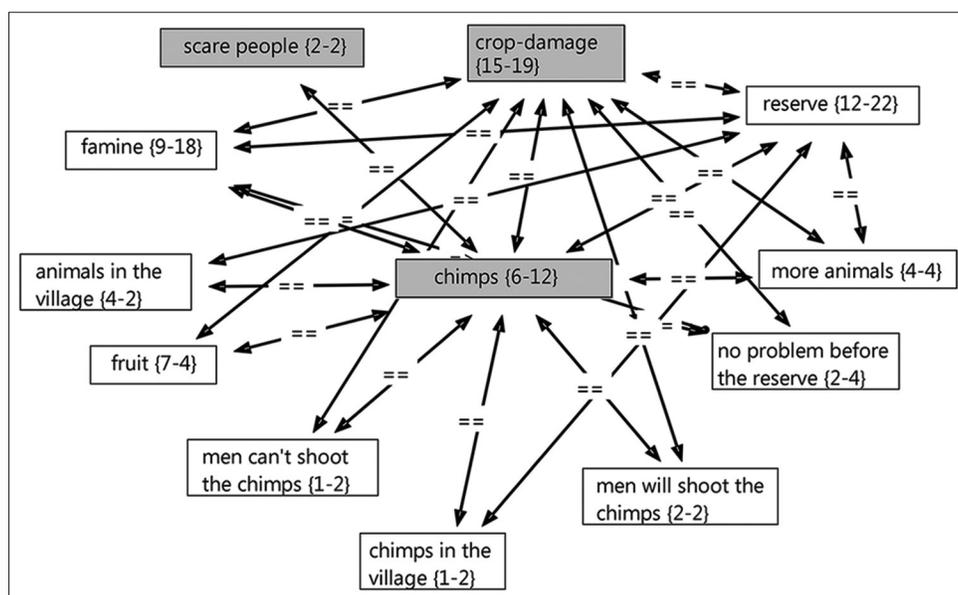


Figure 3
Reserve network according to women’s perceptions

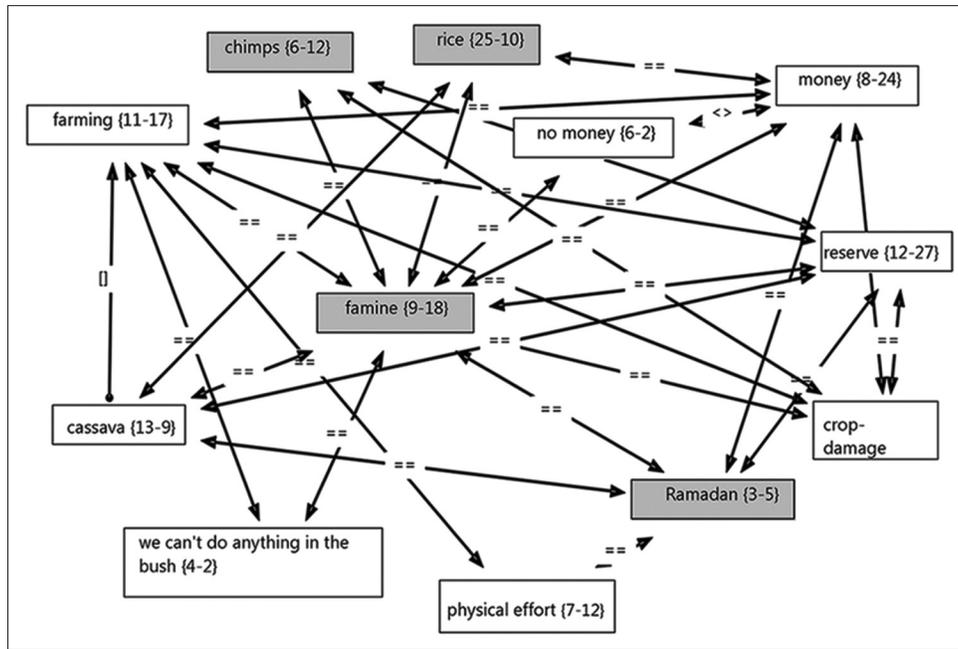


Figure 4
Chimpanzee network according to women's perceptions

not be an issue if the authorities provided an explanation for the existence of the protected areas and established a compensation or management plan for these crop losses.

“We planted peanuts, but the baboons ruined everything in the bush, and the chimpanzees took everything we use to harvest: oranges. My husband wants to go to AD¹ to tell them that he will kill all the chimpanzees that invade our backyard. This year we do not have any oranges to sell. Last year we did not harvest one single orange to sell. This is what we sell to buy food to feed our children. If everything is ruined, what are we supposed to do? This year we made up our minds, even me that I am a woman; I also know how to use a gun. I am a female, but I will get a gun and shoot them all!” (pers. comm. 2008) (Focus group 2, Madina)

Women's livelihoods

Considering that famine was highlighted as one major theme in livelihood constraints, understanding how women feed their households provides further insights into their perceptions of economic constraints.

Of all the resources women obtained from the forest, palm oil and traditional medicines were referred to as the most important. Women frequently mentioned palm oil as central to their livelihoods, since it acts as currency to obtain other provisions, such as rice during rainy seasons, when food supplies are scarcer. We could not quantify how much benefit this exchange generates, although we know that perceptually palm oil is vital to cooking and in terms of cash income, which makes it a key resource.

When specifically asked about meat consumption, women mentioned that they only have meat on very special occasions and stated that domestic animals and fish were potential sources

of protein. Meat was stated as being hard to obtain. While people had some livestock - especially chickens, goats, cows and pigs (the latter only in non-Muslim *Balanta* villages) - there was no habit of consuming domestic animals on a regular basis.

Only in one focus group did women acknowledge the existence of hunters in their village. They made it clear that they knew that hunting was an illegal activity under the new CFNP rules; nonetheless, they mentioned there were a considerable number of hunters in the village that hunted on a daily basis. Apart from this, none of the other focus groups reported hunting as a regular practice. Women generally referred to hunting as a men's topic and avoided discussing it. Women also declared that there was a clear distinction between hunting and trapping, suggesting that setting traps would be less seriously punished than would hunting with firearms. Controlling or managing crop losses due to animals was usually associated with hunting and consumption of those species causing losses, and snares were typically used to prevent or directly deter farm entry. When asked which animals were commonly hunted, the women said:

“Gazelles, bush-goats [duiker], ... Mainly gazelles because bush-goats are too smart. Porcupines get trapped; they do not need to be hunted. Bush-pigs as well.” (pers. comm 2008) (Focus group 1, Iemberém)

Future expectations

Comments from participants were generally positive about our research. As researchers, we were perceived as having a voice with the government authorities since we had permits from Instituto da Biodiversidade e das Áreas Protegidas. They stated that they expected us to convey their needs to the authorities. Women also mentioned other researchers and the

work of several development NGOs in the past (e.g. *Acção para o Desenvolvimento*, Tiniguena). However, according to the women in our focus groups, no positive changes had occurred in their lives as a result of these NGO activities, which contributed to their distrust as to whether researchers and other conservation actors would actually address their concerns. Women also mentioned that our interest in their way of life might result in help from Europeans. Despite any disillusionment they seemed to have felt with past researchers, they still said that participating in research might bring them a brighter future.

DISCUSSION

The thematic analysis of the focus group discussions shows that perceptions associated with the gazettement of the CFNP did influence women's attitudes about the future. The villages inside the CFNP do not have the infrastructure that is capable of providing non-subsistence employment for people. Effectively, villagers have no alternative but to exploit the forest and its resources to survive, even if this means breaking the rules imposed on them by the CFNP authorities.

The establishment of the CFNP appeared to have resulted in a lack of confidence in women's futures since the protected area imposed restrictions on livelihoods, especially slash-and-burn cultivation and hunting (a major source of income for men; Costa 2011). In addition, women perceived the increase in crop losses due to a rapidly expanding protected wildlife population, especially for primates. According to them, the level of hostile interaction between humans and wildlife was increasing due to the establishment of the CFNP. Finding alternative livelihoods in the context of restrictions imposed by the CFNP was considered necessary if they were to abide by the rules imposed by the Park both in the present and into the future.

Women clearly viewed the CFNP and its wildlife as the main reason why villagers were struggling with famine, a major concern at the time of the meetings. Their livelihoods depended on farming, and they needed crops for subsistence and cash-based exchange during the hungry seasons. In all focus groups, women reported that the high effort and low returns from farming were their most significant life constraints. Famine was also said to originate from rice price speculation in addition to crop losses from animals. Women perceived the absence of rice in their families' meals as a higher risk context than it may have been in terms of caloric intake, since less palatable alternatives such as cassava were available. While religious fasting may have contributed to the perceptions of famine as focus groups occurred during Ramadan, the direct association of food deprivation and extreme hunger with the protected area was a source of potential hostility towards the CFNP.

Negative attitudes toward non-human primates, particularly chimpanzees, were commonly expressed in connection with crop losses. Chimpanzees were mentioned frequently as the worst species for taking crops, and consequently perceived of as responsible for human malnutrition. Chimpanzees were also

described as dangerous and aggressive animals. Although there are no confirmed incidents of chimpanzees attacking women and small children in the CFNP, these have occurred elsewhere (e.g., Reynolds 2005; Hockings et al. 2010).

These negative perceptions of chimpanzees contrast with data collected at CFNP in other contexts (e.g. Hockings and Sousa 2011; Sousa et al. 2013). Those studies suggested that living in close proximity with chimpanzees, according to local perspectives, could bring some benefits such as—1) a broad knowledge about chimpanzee behaviour (Sousa et al. 2013) and, 2) an involuntary collaboration between chimpanzees and cashew farmers, since these primates only eat the fruit and leave the economically valuable nuts behind (Hockings and Sousa 2011).

The absence of issues related to health (malaria was the exception) and education in the women's discourse was unsurprising, given the economic and cultural context when the meetings took place. The remoteness of the protected area which promotes biodiversity also means that opportunities for alternative livelihoods are limited due to low human density and poor infrastructure. Inside CFNP borders, primary needs such as food security (Pieri 1997) took perceptual priority during the hungry season. Famine, followed by poor access to health care, and then restricted educational opportunities are associated with areas of high wildlife densities (Roe et al. 2004; William et al. 2004).

Despite all the limitations to economic lives and general wellbeing that these women described, they still believed that a better future was possible relying on help from researchers as agents of change. This region's varied ethnography, natural habitats and unique fauna make it especially interesting to European conservation and development researchers (e.g. Frazão-Moreira 2001; Temudo 2009; Hockings and Sousa 2011; Costa et al. 2013; Minhós et al. 2013; Sousa et al. 2013; Casanova et al. 2014; Silva et al. 2014). Thus, some general level of optimism about a future with poverty reduction and possible economic development was expressed.

CONCLUSIONS

Our study attempts to give some voice to women in this region of critical biodiversity and poverty. If the CFNP is to play an important role in the future towards effective biodiversity conservation of the unique Guinean eco-region, mechanisms to address the concerns and perceptions of all stakeholders are required. Understanding some of the drivers for negative perceptions is one step along this road. While gender alone is not the only factor influencing how local communities perceive CFNP and its wildlife, women's attitudes incorporate those additional variables of exclusion and powerlessness contributing to negative attitudes towards local conservation activities. The establishment of CFNP was seen by women as a major livelihood constraint, since it brought a new set of rules and prohibitions that were perceived as making lives worse. During data collection, women never stated anything positive in relation to the protected area and they did not look forward to participating in CFNP conservation efforts.

Our study shows that cause and effect between poverty and its human consequences need to be disentangled from perceptions of protected areas. In general, people experiencing extensive animal-caused crop losses tend to be less collaborative with conservation efforts and are less tolerant to wildlife proximity (de Boer and Baquete 1998; Weladji et al. 2003; Weladji and Tchamba 2003; Gadd 2005; Lepp and Holland 2006; Lee 2010). Of species eating human crops, non-human primates are often perceived of or targeted as the “worst” species (Naughton-Treves 1997; Hill 2000; Saj et al. 2001; Hill 2002; Kagoro-Rugunda 2004; Strum 2010; McLennan and Hill 2012), since it is difficult to deter them from farms or crops (Hill 2000; Saj et al. 2001; Strum 2010; Hsiao et al. 2013).

The hostility expressed by women’s focus groups towards primates generally and chimpanzees in particular, has major implications for the persistence of these species within the CFNP. Translating hostility into coexistence in the protected area will require on-the-ground activities that shift attitudes towards the positive. These may be via alternative livelihoods that are less subject to wildlife depredations such as small scale tourism or through reducing primate impacts on crops with locally managed deterrence schemes (Wallace et al. 2012).

There is considerable worldwide variation in the extent to which women in developing countries engage in conservation initiatives (Sunderland et al 2014). Female subsistence activities, such as harvesting a diversity of forest products (e.g. fuel wood and wild plants for food and medicines), potentially makes women informants especially knowledgeable regarding the environment degradation and its consequences. However, as seen in several parts of Africa (Flinton 2003; Gillingham and Lee 2003; Kalibo and Medley 2007; Mukadagi and Nabalegwa 2007; Bandiaky 2008; Reed and Christie 2009) and in our study, lack of understanding of women’s perceptions, concerns, and their limited social influence can prevent them from collaborating with or benefiting from conservation programmes. In contrast, in Asia and Latin America, democratic values, poverty alleviation, human development and women’s empowerment programmes have been brought women into the decision-making process for conservation (Abdelali-Martini 2008; Fischer and Chhatre 2013; Sunderland et al 2014). In the context of CFNP in Guinea-Bissau, addressing women’s agricultural and subsistence concerns alongside basic needs such as health care, children’s education and increased women’s autonomy and community participation could lead to higher levels of self-esteem and gender equality (Streeten 1979; Maxwell 1999), and in turn promote conservation through improved coexistence between humans and unique wildlife within the protected area.

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