

Unpacking Conflicts Between Forest Officers And Local People Over Fire Incidences in Uluguru Nature Forest Reserve, Tanzania

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Abstract

This study was centred on unravelling of conflicts between forest officers who manage the Uluguru Nature Forest Reserve (UNFR) and local people who live on the northwest slopes of the reserve, over the question of fire. The study focused on the factors that drove conflicts between the local people and foresters over fire events in the UNFR. Combining archival fire-events data with the findings from in-depth interviews with researchers, foresters, conservationists, and the local people, the study discerned four types of fire-related conflicts between foresters and residents near the UNFR: conflicting interests, structural conflict, antagonistic relations, and information vacuum. Most fires in the reserve are accidental. Therefore, viewing the local people as 'the problem' and their livelihoods as 'the threat' to the reserve is an overly simplistic assessment of the situation, which does not take into account the complexities of the social situation, the fire issue, and the interests of the individuals involved. Indeed, people are not the focus of the current model of managing the reserve. Since the local people and the reserve are inseparable, the government must involve these people in the management of the UNFR to ameliorate fire-related conflicts.

Keywords: *Uluguru nature forest reserve, conflicts, Morogoro, Kilakala, Bigwa, Waluguru*

1.0 Introduction

In studying conflicts in Nature Reserves (NR) such as the Uluguru Nature Forest Reserve (UNFR), scholars have transcended the theme of violent conflicts and have begun to draw scholarly attention on conflicts in management of nature reserves. The latter conflicts seemingly go unnoticed, but they exist; and scholars are looking at immediate and underlying causes before the conflicts turn violent. The following statements from a forest officer and a local leader, respectively, illustrate the kind of tension that exists between forest officers and the local people.

I think the fines that local people pay for being arrested for starting fires are too little to stop them from repeating the act....(Forest Officer, Morogoro, July, 2009).

Traditional laws [from the 18th Century through the mid-19th Century] were not that punitive, the traditional government would not let, say, jail a person or cane people. There were high ethical standards and respect amongst people; they were fearful of doing anything that was forbidden. Nobody would even question anything they were asked not to do..... this served forests (Local leader, Morogoro, January, 2009).

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The two viewpoints illustrated in these quotations about the management of the UNFR,² formerly known as Uluguru North Territorial Forest Reserve and Uluguru South Territorial Forest Reserve) contradict one another. The viewpoints illustrate the ways in which trained forest managers, acting through the central government, and local people,³ acting through their traditional administrative system, would act to abate fires in the UNFR, and indicate how widely views on fire incidence in the UNFR can vary. This ideological divergence stems from, arguably, two sources. The first source is the way each narrative frames individual feelings and how these feelings shape *trust* in a forest management paradigm. The second source is how the ideologies challenge the efficacy of either modern or traditional knowledge systems in forest management, including fire suppression. At the centre of each narrative is a human agent interacting with the forests and shaping the observable characteristics that define forest degradation or forest health⁴. Managerial excellence involving a particular forest management model is essential for the success of addressing anthropogenic drivers of forest degradation (including stopping incidents of fire).

Neither traditional nor modern model of forest management is necessarily better; however, area-specific forest management success stories demonstrate the effectiveness of a particular model in the area over time. This study identifies two conflicting institutions that affect the care of the forest: the first is the local or traditional institution, and the second is the state or modern institution. While the traditional institution is rooted in local space, the state or modern institution exists in three spatial dimensions: grassroots (Village, Ward and Division); regional (District, Region); and national (Ministry/State).

The management of the UNFR today is a legacy of colonial nature management. The German (1880s-1919) and British (1919-1961) colonial governments used a protectionist approach to restrict local people's access to the Uluguru forests through various laws and regulations. From 1929-1955, the colonial government established and enforced stringent requirements, such as obtaining permits to burn one's own land, mandatory use of fire breaks around each farm, regulations to prevent large-scale burning, and an organised survey of forest boundaries (Temple, 1972, 1973; Lundgren, 1978). However, conservation policies during the colonial era were not locally tailored (Temple, 1972) and excluded the role of the local people in forest management. After Tanzania's independence in 1961, a protectionist approach continued to characterise forest policies. For example, between 1963 and 1996 it was unlawful to enter the forest without a forest officer's permit (Bhatia & Ringia, 1996).

To understand the conflicts related to human-induced fires in the UNFR, this study recasts the current explanatory trajectory to provide alternative interpretation and understanding of the root cause of fires in the UNFR. The accusation that individuals,

² The UNFR is located on the north and south ranges of mountains called the Uluguru. This study uses UNFR and Uluguru interchangeably.

³ The study uses the term 'local people' as a general term for people who live[d] on the slopes of the UNFR on Uluguru Mountain, regardless of their ethnic identity, class, gender, education or occupation.

⁴ This study uses forest health to mean a forest that is not degraded through human extractive use of trees for timber, poles, fuelwood and other construction material.

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in this case people who live in the area, start fires is a one-sided characterisation of a fire phenomenon. Its advocates assume that local people are the problem and that there is something inherent in this area or the local people that explains the high fire incidence in the UNFR. A thorough understanding of fires in the area requires approaching the issue as complex and informed not only by multiple levels of spatial context and their interactions, but also by history (Robbins, 2004). To explicate the phenomenon of fire in the UNFR over time and space, the study draws from social construction theory, rooted in the work of 19th century radical philosopher Immanuel Kant, who proposed the constructed nature of observed phenomena (Robbin, 2004). The overarching questions for this study were:

- Why do fires persist in the UNFR despite all the efforts in place to suppress them?
- What forms do conflicts over fires take?
- How are conflicts over fires mediated?

Drawing from the literature on constructivism, especially what Robbins (2004) called soft constructivism (a focus on people's misperceptions of objective facts or the social inclinations that infiltrate scientific endeavours), does not mean ignoring the physical processes that affect the UNFR, such as fire or variations in climate. While the effects of fire on forest vegetation is a *physical* output of fire interacting with the vegetation, some of the processes that lead to fire occurrences reveal temporal and spatial processes of *power* that culminate in conflicts over fire incidences between the local people and UNFR managers. Power and conflict point to the literature on conflict theory, originated by philosophers such as Marx (1818-1883), and later extended by Weber and many other scholars in nature-related conflict studies, e.g. Skutsch (2000), Neygen (2000), Tropp (2003), and Sangiga *et al.* (2007). This study does not address claims of power relations and the production of capital [as Marx argues] because they are not related directly to this study; however, I concur with the Marx and Weber's idea that conflicts involve two groups or two perspectives and result from those who have power trying to perpetuate that power. Struggle begins as a response to the unjust practices that those with power impose on those without power. These struggles may be either implicit or explicit.

Schroeder (1999) noted that the Government of Tanzania, local and international nature conservation organisations, and private entities that benefit from conservation activities have asserted dominion over nature, denying local people the rights to access the same. The state, private institutions and local and international conservation agencies share interests and interpretations of what nature should be, specifically, that nature conservation areas must be devoid of people. This environmental imagery (Nygren, 2000) is a social representation that affects the formulation and management of nature reserves and local people near nature reserves. The involvement of dichotomous parties, which are asymmetrical in power and interests, results in conflict of interest. At the micro-level, the struggles and resultant conflicts may stem from an individual in response to effects that other conservation stakeholders cause him/her. Investigating the past and current power relationships that involve different processes and entities in the management of the UNFR will lead to improved fire management and fewer fires.

This study comes at a crucial turning point. The Ministry of Natural Resources and Tourism has revised the command-and-control approach in forest management and implementing Participatory Forest Management (PFM) in Tanzania (United Republic of Tanzania, 2002). This study benefits the Uluguru Nature Reserve Conservator Office as its officers draft a management plan for the UNFR. The benefits of this study for the local and international biodiversity conservation community, who wish to see peace and biodiversity sustained in the UNFR for generations to come, are invaluable.

The description the study area and the methods of data collection and analysis follow in the next section. In the results section, the article describes the context of the conflicts, the types of conflicts, and the current model of fire suppression in the UNFR. A discussion of the key findings follows. The article concludes by reiterating the salient findings of this study.

2.0 Data and Methods

2.1 Description of the Study Area

The Government of the United Republic of Tanzania, through Government Notice Number 296 of July 11, 2008, declared the former North and South Uluguru Territorial Forest Reserve as Uluguru Nature Forest Reserve (UNFR) (Figure 2).

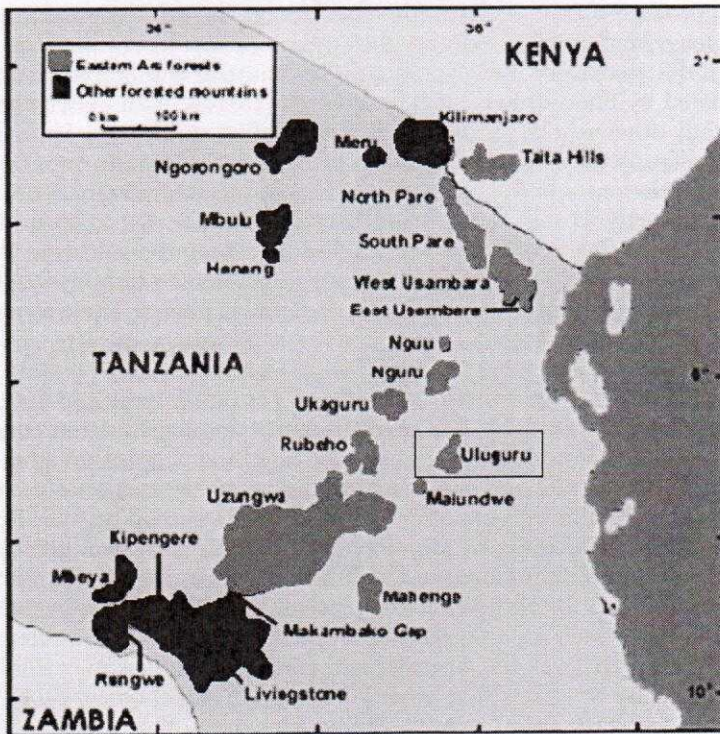


Figure 1: UNFR and the Eastern Arc Mountains (gray color)

Source: www.easternarc.or.tz/eastarc

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The Uluguru Nature Forest Reserve lies south of the equator $06^{\circ}51' - 07^{\circ}12'S$ and $37^{\circ}36' - 37^{\circ}45'E$ and includes 291 square kilometres of forest area (Burgess *et al.*, 2001). The UNFR is one of a chain of 12 mountain blocks of the Eastern Arc Mountains (Figure 1), stretching 900 kilometres from Makambako (Southern Tanzania) to the Taita Hills (South Coastal Kenya) (Critical Ecosystems Partnership Fund, 2003). The main soil types are acidic lithosols and ferralitic red, yellow and brown latosols that developed on Precambrian granulite, gneiss and migmatite rocks (Frontier-Tanzania, 2005). The terrain is steep, although sometimes forests thrive on $50^{\circ} - 70^{\circ}$ slopes. The slopes of the UNFR have a population density of 78+ people per km^2 (Cincotta *et al.*, 2000)

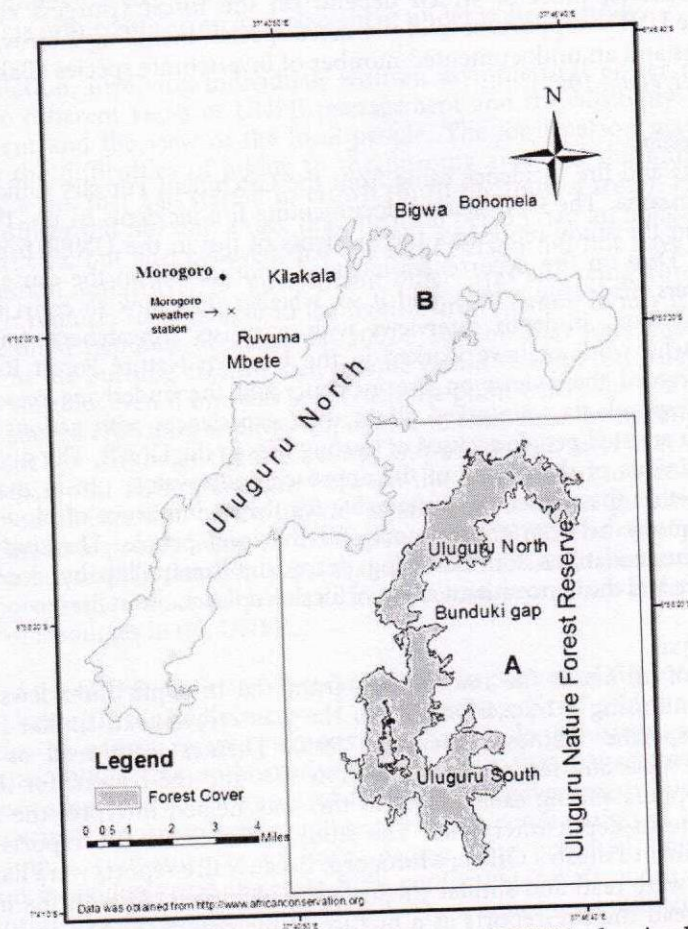


Figure 2: Uluguru Nature Forest Reserve (UNFR), showing Uluguru North

This study focused on the northwest section of the UNFR (Bigwa to Mbeta, a north-south transect, in particular on the forest ecotone bordered by a wooded grassland

under the control of the Morogoro Municipal Council. The Bigwa-Mbete stretch has most fires of the UNFR sections (personal observation, 2008). This area is on the leeward side of winds from the Indian Ocean and receives less rainfall (1200-3100 mm/year) than the eastern area (3000-4000 mm/year) (Burgess *et al.*, 2001).

The UNFR supports more than 135 strictly endemic plant species, as well as hundreds of plants endemic to the Eastern Arc Mountains (EAM); 26 EAM endemic tree species grow in the UNFR (Burgess, 2001; Burgess *et al.*, 2001). In addition, the UNFR sustains 16 strictly endemic vertebrate species, 45 EAM endemic and 82 near-endemic vertebrate species (Burgess, 2001; Burgess *et al.*, 2001; Doggart *et al.*, 2001), and 169 invertebrate species, most of which depend on the forest (Burgess *et al.*, 2001). Moreover, the UNFR supports several red-listed species, including 8 birds, 17 reptiles, 20 amphibians and an undocumented number of invertebrate species (Baker & Baker, 2002, Svendsen *et al.*, 1995).

2.2 Data Collection

Data on arrests and fire incidence came from the Catchment Forestry Office (CFO) in Morogoro, Tanzania. The CFO started documenting fire incidents in the 1980s, so the archival data in the study represents the incidents of fire in the UNFR from the 1985 through 2007. Data on fire occurrences included information on the cause of the fire, whether foresters made any arrests, and if so, whether they took to court the arrested persons. In addition, in-depth interviews with scientists (researchers, foresters, and conservators) who work or have worked in the Uluguru Nature Forest Reserve were conducted to record their views on fire incidents and the underlying reasons for fire occurrences. Respondents were asked about their experiences with actions that forest officers took on arrested people accused of starting fires in the UNFR. The study inquired about their opinions of the justice of the approach conservators use in managing the UNFR and whether the model was sustainable for the maintenance of biodiversity and peace and harmony between conservators and the local people. The study obtained scientists' recommendations for increasing peace and tranquillity by decreasing the incidences of fire and the concomitant arrest of local people who start fires.

2.3 Data Analysis

Transcription of all audio file information from the in-depth interviews into text format was done using a transcriber. From the transcribed text, similar ideas were grouped into specific themes (Emerson, 1995). Themes were read as text that represented the ideas and feelings of the interviewees and the reasons for those ideas and feelings. Understanding each theme in this way helped interpret the ideas that arose during the in-depth interviews. The study reviewed 91 fire reports obtained from the Catchment Forestry Office, Morogoro. Because fire reports were hard copies, the documents were read and similar themes were identified. As with the interviews, the researcher read the fire reports as a picture of the day of the fire event, but also considered other factors that affected the content of the reports. Lastly, the information from the fire reports and the in-depth interviews was synthesised to interpret the meaning of the information provided (Bernard, 2000). Most interviews were conducted in Kiswahili and most fire reports were also written in Kiswahili.

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3.0 Results

3.1 *The context of conflict*

On the night of 25th January, 2009 there was a fire event in the Uluguru Nature Reserve. The fire started in an area the researcher had visited with a forest officer during the day to assess plant species diversity in fire-prone areas. On the morning of 26th January, government officials, foresters, and a few individuals from the municipal fire department went to the area to try to put off the fire. During this incident, a local male in his mid-forties or early fifties returning from the forest with dead wood for fuel was arrested. What led to his arrest was as follows: One of the government officials asked him: "Don't you see fire burning up there?" The man replied: "I do, but what can an individual like me do?" The statement irritated the government official who ordered his immediate arrest and placement under police custody.

This confrontation, involving individuals with an asymmetrical power relationship, illustrates two different views of UNFR management and responsibility: the view of the government and the view of the local people. The local person may have been reflecting on the difficulties of hiking to the burning area and the impossibility of extinguishing a fire that had started to crown (burn the tops of trees). However, the government officer did not only think that the local person had an obligation to help extinguish the fire, but also believed that the local person did not have the right to argue or question authority. The government officer was enforcing Forest Act No.7 (2002), which requires local people to extinguish fires burning in any forest in their proximity (United Republic of Tanzania, 2002). Few officials were able to hike the steep terrain to the burning area. In fact, no one would attempt to extinguish the fire at such high altitude, even if one was able reach the point where the fire was burning. The fire had started crowning and was impossible to extinguish by beating out the fire with tree branches. Although the fire burned out of control, later that day it rained and the fire died out. This interaction between the government officer and the local man is a good illustration of the power asymmetry between government UNFR officers and the local people living on the slopes of the UNFR. The concept of power is critical in this context. In the discussion that follows, the article underscores how the concept of power relates to and leads to different conflicts, and how it defines access to and control of resources in the UNFR.

In the case of the UNFR, the state wants to remain in control of the local people and the nature reserve these people surround. Strong state control and the authoritative characteristics of nature reserve management have a long history, as this article discusses later. While this authoritative approach to the management of natural resources seems necessary in the eyes of the foresters, government bureaucrats, and local and international organisations interested in the conservation of biodiversity, it may have unjust consequences for local people. The potential unjustness arises because local individuals and the state have conflicting beliefs about access to and control of forest-based resources in the UNFR. These conceptual differences shed light on the types of conflicts that exist in the study area.

3.2 *Types of conflict*

The classification of nature-related conflicts is based on four approaches. Some authors suggest classifying conflicts based on *actors* (Skutsch, 2000; Sangiga *et al.*, 2007) and

structure (Skutsch, 2000). In addition, this article suggests classifying conflicts based on *harmonious* and *shared information* approaches. This study identified four categories of conflicts that relate to fire events and the forest officers' accusations of the local people: conflicting interests, structural conflict, antagonistic relations, and an information vacuum. The description of each of the conflict categories follows next.

3.2.1 *Conflicting interests*

Forest officers within the Ministry of Natural Resources and Tourism (MNRT), and members of the local and international conservation community would like to see the UNFR managed in a way that prevents human encroachment for any extractive use. Members of these groups prefer to eliminate fire through fire suppression. This nature conservancy perspective assumes that fire is a threat to the species in the reserve and that the biodiversity (fauna and flora) cannot be sustained if fire is present (Burgess *et al.*, 2001). To achieve conservancy goals, the MNRT declared the UNFR a nature reserve on 11th July, 2008. The declaration is in line with the conservation priority of a nature reserve based on endemism, the magnitude of threat (Mittermeier *et al.*, 1998), and IUCN Category I (nature reserve) status (Weeks & Mehta, 2004). Therefore, the interests of the MNRT hinge on a non-utilitarian principle, mainly the non-extraction of forest resources and the suppression of human activities that would in any way affect the flora and fauna in the UNFR. Fire suppression was among the major goals of the UTFR, and is now a primary goal of the UNFR.

Declaring the area a nature reserve, the UNFR changed its status from the Uluguru Territorial Forest Reserve (UTFR) to a nature reserve. This new status restricted local people from access to the forest. A nature reserve is set aside for preservation (Mittermeier *et al.*, 1998), research, and monitoring (Weeks & Mehta, 2004). Although in earlier times, local people had partial access to the UTFR for forest products like dead fuel wood, wild fruits and mushrooms (management based on partial-utilitarian principle), current regulations strictly prohibit local people's access to the UNFR.

The local people's interests, regardless of the status of the forest based on the utilitarian principle in the forest, centres on the use of forest resources (dead wood, medicine, fruits). Local people have derived their livelihood from these forest resources. Members of the Waluguru, the major tribe on the slopes of the Uluguru Mountain, have lived around the UNFR area for over a century. These residents have benefited from forest products (Hamisy *et al.*, 2000), as well as non-forest products and ecosystem services, such as water catchment, microclimate regulation, and a place for rituals and worship. It would be idealistic to assume a separation between the local people and the forest resources around them (DeFries *et al.*, 2007), because these individuals interact with, and are part of, the forest ecosystem.

The interests of conservation managers clash with those of the local people because perspectives on the UNFR are so different, by either group. Clashes between the two groups have occurred for over a century, and are ongoing. Arrests for starting fires continue, but the incidences of fire do not seem to decrease. So, conflict of interests between the local people and conservation managers is just one of the many types of conflict in the area.

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3.2.2 Structural conflict

Structural conflict results from the imbalance of power between the entire state apparatus including the Ministry of Natural Resources and Tourism and the local people. Operating through a top-down approach, the ministry officers instruct the conservation managers about how to achieve the goals of managing the UNFR. The following excerpt from a ministry letter addressed to local forest officials illustrates this management approach. The approach is reflective of the responsibility of the ministry, while the minister is responsible for forest policy formulation and its execution. The Director of Forestry advises on all matters of management of forests, including nature reserves, in Tanzania (URT, 2002). A letter, dated September 2003, from the Permanent Secretary of the Ministry of Natural Resources and Tourism to the Project Manager (Region) overseeing the management of the Uluguru Territorial Forest Reserve read:

In addition to the taken actions, it is crucial that you look for those who started the fires and bring them to justice. Almost every year fires that torch Uluguru Mountain start from the same areas. Those who start the fires see we do not make follow-ups, which means we do not care, therefore they also do not care, so they perpetuate their sabotage. Please, collaborate with the responsible authorities to hunt down those who start the fires so you take them to the court of law [and] then send me a progress report.

The ministry's exercise of power and control through the apparatus of the state, such as the police, prisons, and the courts, targets the local people. An organisational structure has to be in place to control local people (Weeks & Mehta, 2004). The underlying assumption of the system is that the culprits are members of the local population. While the government has power, the local people are powerless and at the receiving end of orders from the state (Schroeder, 1999) – the local people have no choice but to respond to government orders. The Forest Act (2002) Part IX, Section 71-3 addresses local people receiving orders from the state. The Forest Act's clause on local people's obligation to extinguishing fire is an example of how local people must comply. The Act states:

Any person in the vicinity of a fire has the obligation, whether called upon do so or not, to attempt or assist in extinguishing such fire which he has reasonable cause to believe is not under control or may become dangerous to life or property but no person shall be obliged to take any action which a reasonable person or firm disposition would consider likely to endanger his life or cause him injury.

Local people have an organisational structure that binds them together (Fairhead & Leach, 1995, Sangiga *et al.*, 2007). Since the reign of the first chief of the Waluguru, leadership based on majority votes voted Chief Mbega or Kingalu into office. The chief had three subordinates (Gungulugwa, Zegema and Kijoka) and 176 sub-chiefs. The sub-chiefs dealt with the needs of the local people in their jurisdiction, and were responsible to the chief and their respective communities. There was a strong sense of loyalty and obedience to customary regulations. For example, prior to praying for rain the whole chiefdom had to fulfil some conditions. The local leader described how obedient and loyal the local people were to the chief and his administration:

*....on the day we pray for rain, I inform all sub-chiefs that no person would be allowed to light a fire in his/her home until the prayer and the ceremony associated with the prayer was finished....nobody would be allowed to burn grass or wood because we believed that the rising smoke would confront clouds so it would not rain. We called this *Virangi*.*

The preceding narrative, however, contradicts the forest officers' account. One of the fire reports sent to the Ministry's Head Office in 2000 read:

The year 2000 has been the worst in fire incidents, unlike the past two years (1998 and 1999). Extreme drought and the late onset of short rains have largely contributed to the situation. In addition, other contributors to fire incidents include the local people's myth that setting fire induces rain; this includes the use of fire in preparing farms and hunting of wildlife. Experience shows that most fires start from public lands or local people's farms and torch the Uluguru Nature Forest reserve.

In this article it is argued that the local people, or *Waluguru*, still value local or traditional leadership because it has existed for about 168 years (early 1800s-1968). However, the governance structure in place has obscured that local leadership. The government abolished the position of chief in 1968 (Hartley & Kaare, 2001). The chief seems powerless, indicative of the slow decay of the traditional system (Fairhead & Leach, 1995). This illustrates the conflicts and the uneven power and authority between the two institutional controls of the local people: the state and the traditional administrative system. Although efforts to suppress fires have been in place for years, these efforts have not had much success. Indeed, the structural conflict highlights a third type of conflict between the local people and the foresters – a relationship conflict.

3.2.3 Relationship conflict

A relationship conflict is firmly rooted in the attitude of one group of people towards another. The roots of this attitude may stem from the negative stereotypes that one or both groups develop about the other, due to the observed behavioural practices that define the groups. When one of the groups does not understand or accept the practices of the other, these practices become a ground for defining the other group who, in the minds of the first group, are unreasonably pursuing a particular practice. UNFR managers, having been trained in the management of natural resources, tend to prejudge the local people (Skutsch, 2000) as culprits in all the fire events taking place in the nature reserve. Similarly, the local people perceive UNFR managers as an *arm of the state* whose job is to discipline people (Week & Mehta, 2004) so the nature reserve will remain in its pristine condition. This prejudice is an indication that conflict exists but nobody is aware of it (Skutsch, 2000); or rather people might be aware of it but feel the state of affairs is inevitable.

After Tanzanian independence in 1961, the Ministry of Natural Resources and Tourism adopted colonial policies when developing national-level forest management plans (including fire control) for all forest areas and unique areas with rare species, like the UNFR. Subsequent policies and acts have all been in favour of the preservation of nature, regardless of any settlement around these natural landscapes (Weeks & Mehta, 2004; Saginga *et al.*, 2007). Although it has been unlawful to enter the forest without a forest officer's permit (Bhatia & Ringia, 1996), obtaining permission before accessing the forest is not realistic for the local people as there are few foresters relative to the size of the Uluguru Nature Forest Reserve.

The management of the UFR, and now the UNFR, with respect to restricting anthropogenic pressure on the forest resources, has focused narrowly on the local people

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being the problem and foresters being the managers. The contentious relationship between the foresters and the local people indicates a relationship conflict between the two sects. The fact that the government does not assist local people who are hurt while fighting fires aggravates this conflict. One forester described the situation in this way:

In 1987 there was a fire event in the UNFR, so we went to put it out. The local people also joined the foresters to fight the fire which happened to be very big, with the situation being made worse by wind. In the course of fire fighting, unfortunately, one villager was badly burnt... the state never assisted in his treatment in hospital. This man's family and relatives were left to bear all the cost of taking care of him while in hospital. It was so disappointing!

Some degree of compassion is required between the state and the local people for a good relationship to develop. The state must demonstrate that it cares for its people; although it claims it is doing just that. It claims that its involvement in conservation benefits the local people and the nation in general, and trusts that this shared interest will translate into a close relationship between the state and the local people. However, such relationship requires that each party be well informed about the inception, development, implementation and evaluation of the management plan, which is not the case in the example of the UNFR. The state can develop a relationship with the people by involving them in the decision-making (governance) process during the inception, development, implementation and evaluation of UNFR management plans. When every stage of UNFR management plan development is transparent, the local people will feel valued (increased legitimacy of the process), develop a sense of ownership (accountability) of the management plan, and cooperate (be ready to learn systematically through the process).

3.2.4 Information vacuum

Currently, there is information vacuum conflict between the local people and the foresters or UNFR managers. The local people do not have the necessary forest-management-related information, such as their responsibility to help extinguish fires in the UNFR. In addition, local people are unaware of the penalties stipulated in the 2000 Forest Act for accidentally causing a fire in the UNFR or deliberately accessing the UNFR for forest and non-forest products. In a fire event in September 2009, a forester's observation of the local people's sluggishness in helping extinguish the fire illustrates their lack of knowledge about their legal obligations. The forester remarked: In September 2009, a fire broke out burning the UNFR near Bigwa and Lukuyu area. To my surprise, few people showed up to help put out the fire in the UNFR on that day. Most people seemed to mind their own business, which upset me. I think the laws governing fire management must be strictly enforced and the local people must be educated about their responsibility whenever there is a fire event in their proximity.

The local people acknowledge the importance of having forests, and know the environment they interact with everyday, including the UNFR. The following narrative by an elderly local leader challenges foresters' homogenisation of the local people as ignorant of the ecosystem services provided by the UNFR:

Forests are our survival, we get water for domestic use from the forests around us, the weather is good because we have forests around... We pray for rain, and use our own technology to bring rain...but this works because we have forests in our area.

Lack of shared knowledge between the UNFR managers and the local people, or at least learning from each other, leads each side to act out of ignorance. Their actions, such as local people refraining from helping extinguish fires in the UNFR or foresters asserting that the local traditions hinder compliance with laws governing the management of the UNFR, are detrimental to the successful management of the UNFR. While local people assume that UNFR managers are against their communities, the UNFR managers assume the local people are against conservation efforts. Due to inconsistent background information, the local people and UNFR managers clash over forest management. The following statements exemplify the contrasting understanding of the two groups. A forester described the local beliefs in the following way:

The local people believe the forest belongs to the government and therefore the government should be responsible for taking care of it. So, whatever happens to it is none of their business. In June 2005 there was a fire incident in Mbete area...people were not motivated at all to help putting it out; they did not see how this could endanger their own survival. They did not realise that this could affect water sources, the environment and ultimately result to their poverty (Forester, June, 2009).

One elderly local woman had her own version of the reasons why the local people seemed to be acting in defiance of the requirement that needed them to assist to preserve the environment, including putting out fires whenever they broke out, and general conservation of the forest. She had this to say:

When there is a fire incident, they [the state] come and start harassing people... all of them come, the people from the office of the regional and district commissioner, municipal officials, and the municipal militia. You may show up to help only to end up being harassed! Who wants to fall victim of harassment...you would not either, would you? So, we might seem diffident but it is their forest, [it] is under the government.

The types of conflict between the local people and UNFR managers are diverse. This article has identified at least four types of conflict: conflict related to interests, structure, relationships and lack of information. The categories are not mutually exclusive; rather, they interact and reinforce one another.

4.0 Current model for addressing fire issues in the UNFR

Currently, the model for addressing fire issues reflects a top-down or hierarchical command-and-control approach. The Ministry of Natural Resources and Tourism, through the Department of Forestry and Bee Division and the Chief Conservator's Office in Morogoro, is responsible for the management of the UNFR, including fire suppression. Policing is the main strategy used to prevent the local people from accessing the UNFR and to ensure that there are no human-induced fire incidents. Everyday forest officers patrol the borders of the forest and sometimes the interior of the UNFR. The forest officers usually perform random checks so the local people do not know when to expect any surprise visit by patrol personnel. This strategy has helped to keep the people away from the UNFR.

The management of the UNFR reflects the forest policy. This policy, defined as a set of ideally rational and consensual intentions implemented for a particular achievable output, has excluded some voices completely. Since 1909, when the German colonialists introduced a management plan for the UTFR, local people's voices have been ignored in

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the conception, negotiation, and agreement of the common platform of implementing the policy. The Germans imposed a new administrative structure through headmen (*Akidas*) and the management strategy of the UTFR on local people. In this case, the colonial bureaucrats, who assumed knowledge about the status of the forests, the people around the forests, the local people's interactions with the forests around them, what caused the degradation of the forests, and ways the government could halt the degradation of the forests, created the forest management policy.

The British, having taken over from the Germans, imposed the *Mndewa* local administrative system in 1919, but continued the German legacy of managing the UTFR. During both German and later British rule, bureaucrats imposed rules and regulations of land management on local people. Over time, the interactions between the local people and colonial rulers became increasingly strained. Tired of the ill-conceived policies, in the 1950s the local people protested against a British agriculture project by setting fire to the UTFR. This reaction reaffirmed the opinion that "voices that have not been heard (or have been disregarded) must be made the central concern in any policy process" (Springate-Baginski & Blaikie, 2007:61).

Even after the Government of Tanzania had taken control of the forest, the restrictive approaches implemented during the colonial rule persisted. The exclusion of the local people has continued in the current forest policy, despite the change from UTFR to UNFR. This continuity is partially due to preparatory transitional logistics, such as preparation of the UNFR management plan.

Under the UTFR status, the state allowed the local people minimal access to the forest because these people needed certain forest products which would not affect the forest health, when harvested. The people were allowed access to gather dead wood, fruits, mushrooms, and for rituals or worship. The government strictly prohibited any destructive activity inside the reserve, such as farming, lumbering, cutting of trees for any other use (carving, charcoal kernelling, and construction), debarking trees for ropes and medicines, uprooting trees, and capture of wildlife. After the UNFR declaration in July 2008, the local people were not allowed to access the forest at all.

The conservator's office is responsible for establishing firebreaks at the UNFR's boundary with public land. The chief conservator's office employs local people to create firebreaks. The employed local people create firebreaks using hand hoes and machetes because this method is cheap and feasible given the rugged and dissected steep terrain. Firebreaks are usually three meters wide and are supposed to surround the entire UNFR. However, during this study only a few areas had firebreaks. When asked about lack of these firebreaks, the forest officer said that their office had inadequate funds so they had to create firebreaks only in the most fire-prone areas.

At the village level, there are community environmental committees, mostly comprised of leaders and a few individuals who are non-leaders. These committees are responsible for any environmental-related issues, such as harvesting of privately owned trees. Harvesting a privately owned tree requires not only permission from a forest officer, but also the owner of the tree has to inform the village environment committee. These measures are taken to ensure that nobody harvests trees from the UNFR.

There is coordinated effort between the central government (through the Regional Commissioner's Office and the District Commissioner's Office) and the Municipality of Morogoro to fight fires collaboratively. This massive effort may seem adequate to suppress fire in a 291-square-kilometre forest, but the area most prone to fire is the northwest part of the UNFR, which is characterised by steep and dissected terrain. No road network reaches the forest boundary, nor is the firebreak continuous in this area. The UNFR boundary is only accessible on foot. Aerial fire fighting equipment and mechanisms are not in place and are not an option given the current government budget, which is largely donor dependent.

5.0 Discussion and conclusion

The brief history outlined above indicates how relationship conflict has developed over time and space. German colonialists established restrictive management of the UNFR in 1909. The German (1880s-1918) and later British (1919-1961) colonial governments adopted a protectionist approach to restrict local people's access to the Uluguru forests through various laws and regulations. Between 1929 and 1955, the colonial government established and enforced stringent laws and regulations to suppress fire in the UTFR (Temple, 1972, 1973; Lundgren, 1978). Although these policies may have maintained biodiversity in the UTFR, they did not account for local situations (Temple, 1972), and were not participatory.

This study has been able to bring to the fore three key points. The first point is related to the nature of the creation or production of nature conservation areas like the Uluguru Nature Forest Reserve based on western conceptualisation of a nature reserve. Secondly, it has highlighted the interplay of local and global forces over time and space in shaping the management of UNFR. Finally, the study has shown that sustaining the biodiversity and people's livelihoods in the study area requires recasting the thinking behind the current management model. The article discusses each of these findings in turn.

5.1 Creation of a nature conservation area

The colonial authorities produced a social construction of the UTFR within the western framework of creating pristine landscapes exclusive of human interaction. This conceptualisation of the production of nature started in the western world (Newmann, 2003; Weeks & Mehta, 2004) and was institutionalised in Africa (Schroeder, 1999; Brockington & Igoe, 2006) including Tanzania. The legacy of the western imposition of nature conservation is deeply engrained in the policies that govern management of the Uluguru Nature Forest Reserve today. Conservationists are not completely ignorant of the lost values, conservation traditions, and knowledge of the local people; however, they practice in response to western standards of nature conservation or preservation in order to attract the interest of local, regional, and international conservation agencies and donors (Mittermeier *et al.*, 1998; Schroeder, 1999). While this approach may seem ideal in the broader sense of biodiversity conservation in nature reserves such as the UNFR, it leads to an inherent rift between the interests of local people and those of the government or state and the conservation community. The fact that the state has power and control, and gains support from the regional and international forces that have a stake in biodiversity conservation, it must

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manage people living near nature reserves (Weeks & Mehta, 2004). As the traditional administrative structure is crumbling, the local people remain passive observers, their interest in forest management continues to decline, and their trust of forest officers keeps on dwindling daily (Fairhead & Leach, 1995).

5.2 Integrating local and global conservation strategies

The state must underscore the role of the local people in the management of the UNFR; otherwise, local people's compassion to the state's effort to manage the UNFR sustainably is likely to fade away. The state must understand that the deteriorating traditional leadership structure and local traditions contain valuable aspects, and that if these can be merged carefully with the government's strategies the result is likely to yield a successful management plan for the UNFR.

The Ministry of Natural Resources and Tourism is solely responsible for managing the UNFR because it formulates policies, oversees their execution and gives advice on all matters related to forestry in the country. However, there are cross-cutting issues such as water catchment degradation that would best be addressed in collaboration with other ministries and sectors such as the Ministry of Agriculture, Ministry of Water, Ministry of Energy and many others. As an institution of the state, the ministry works with local conservation institutions, regional and global conservation agencies, and international donors interested in the conservation of biodiversity. There has been, however, a clear link between the German and British colonial management of the UTFR and the state's practices for forty-nine years after independence (1961 to the present). Quoting from correspondence between British colonial officials in 1931, Newmann (2003) highlighted the exclusionary ideology that informed the colonialists' emphasis on creating perpetually pristine lands and ignoring the interests of the local people of these areas.

The Government of Tanzania introduced its first Forest Policy in 1953 (URT, 1998). However, the government did not consider people living adjacent to forest reserves as stakeholders in forest management until 1998, when the government reviewed the said policy. A section of the 1998 National Forest Policy reads as follows:

.....to enable participation of all stakeholders in forest management and conservation, joint forest management agreements, with appropriate user rights and benefits, will be established. The agreement will be between the central government, specialised executive agencies, private sector or local governments, as appropriate in each case, and organised local communities or other organisations of people living adjacent to the forest.

The Forest Act of 2002 emphasised the idea of local people participating in the management of forests adjacent to their communities. In Section 3(d) of the objectives of the Forest Act of 2002, the government promises to "delegate responsibilities for management of forest resources to the lowest possible level of local management consistent with the furtherance of national policies." The administration of Amani Forest Nature Reserve (established in 1997) is an example of Joint Forest Management (JFM) involving both the state and the local community. While there are other examples of JFM in the country, these examples involve forest reserves that do not have a nature-reserve status.

The National Forest Policy (1998) and the Forest Act (2002) both emphasise the involvement of local people in forest management; however, there is a gap between policy and practice. Forest officers lack an understanding of the micro-scale functioning of local (traditional) institutions and local communities' motivation to support conservation. This lack of understanding creates a mismatch between forest management policies and their implementation (Kajembe & Kessy, 2000). Foresters assume they know how to manage both forest reserves and the local people; an assumption which indicates that the state, while moving toward delegating forest management responsibility to the local people, is not ready to surrender its powers.

The state is not ready to devolve some of its decision making process to the local level in managing nature reserves like the UNFR, which shows that while the forest management paradigm has changed in theory, it has not actually changed in practice. In fact, the Forest Act still maintains that areas rich in biodiversity are "sensitive" areas, and that the state "owns all biological resources." Hence, the government has "the right to determine and regulate access to genetic resources...in accordance with the provisions of this Act [Act 2002] and any other written law on biological resources" (URT, 2002). I argue that the state asserts the authority to decide how to manage any forest reserve and thus local people are likely to be passive observers and recipients of state orders. However, ignoring the role of the local people in managing forest resources is a source of conflict between foresters and local people. Whether or not local people are involved in the management of the nature reserve, whenever the state adjusts management policies, it should clarify how the local people will benefit from the new management structure. Providing local people with incentives to manage the UNFR can ease current and future conflicts between the local people and foresters, and may increase local people's motivation to assist with fire suppression in the UNFR.

In 1980, the International Union for Conservation of Nature (IUCN) and United Nations Environmental Programme (UNEP) produced a World Conservation Strategy (WCS) document. UNEP in collaboration with World Wildlife Fund (WWF) commissioned the WCS by funding the preparation and inception of its core themes and structure. The WCS did not thoroughly address the social and political issues of conservation (Boyd, 1984) and contained a weak argument for ingenuity in traditional conservation strategies. These shortcomings are not surprising because the creation of biodiversity hotspots such as the UNFR is based on plant endemism and the degree of threat (Mittermeier *et al.*, 1998; Burgess *et al.*, 2001), not on how local people might benefit and improve their standards of living. In addition, the nature reserve is a scientific reserve, which means the status dictates that no human activity should be conducted in the reserve (Weeks & Mehta, 2004).

5.3 Rethinking conservation strategies

The Government of Tanzania has ratified a number of international conventions, including the Convention on Biological Diversity (March 8, 1996); the United Nations Framework Convention on Climate Change of April, 1996; and the Convention for the Protection, Management, and Development of the Marine and Coastal Environment of the Eastern African Region and Related Protocols (March 1, 1996). In response to international biodiversity conservation needs, the state has also developed

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the National Biodiversity Strategy and Action Plan, 2000. The conventions and the National Biodiversity Strategy and Action Plan marginalise the voices of the local people. The governance of both nature and the people around nature reserves is featured more prominently in these documents (Weeks & Mehta, 2004). Assuming that local people must be disconnected from the natural environment around them in order to preserve nature (DeFries *et al.*, 2007) is a serious mistake, because the two are, in practice, inseparable. The management of biodiversity must address this connection. The marginalisation of the local people in management policies and practices engenders a weaker attachment to forest resources, and it erodes the trust the local people have, as partners in management.

The current UNFR management model and the draft management plan reflect the legacy of excluding the local people from forest management. The management focus is biodiversity only, not biodiversity and people. Bureaucrats assume they know what is required to effectively control the UNFR, initiate, develop, and execute plans. Inherent in this process is the silencing of local voices, a key to overseeing the UNFR (Fairhead & Leach, 1995; DeFries *et al.*, 2007). The current process therefore is a command-and-control approach.

The characterisation of the local people as the problem and their traditional lifestyle as inherently dangerous to the survival of the UNFR is an over-generalisation and a fallacy that requires rethinking. Reconsidering this erroneous characterisation will enable the state to identify key incentives for the local people to get involved in running the UNFR, and can serve as a way to bridge policy and practice based on strong traits of the local community. Isolated incidents involving a few individuals are behind the fires in the Ulunguru, not the entire local community. Therefore, a collective accusation of the local people is unjust. Further, this collective accusation seems to hinder efforts to keep fire out of the UNFR.

The state must address the root causes of existing and potential conflicts in order to manage the UNFR successfully. The local people are the key to sustainable management and the state must not ignore their role in the management plan, especially because the area surrounding the UNFR is densely populated (Cincotta *et al.*, 2000). In the course of this study, it was observed that most fire events in the UNFR were accidental. Rarely did fires involve arson or fire used as a hunting tool. The attitude of the local people towards management lies at the core of the success or failure of biodiversity conservation. Successful management is not a matter of controlling the actions of the local people. Rather, addressing the fire issue in the UNFR requires a thorough understanding of the underlying factors that lead to fire events. Why do fires that seem manageable in farms accidentally burn out of control and torch the UNFR? This topic requires further investigation to illuminate the micro- and macro-scale factors that explain fire incidents.

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