



# The influence of institutions on access to forest resources in Cameroon: The case of Tofala Hill Wildlife Sanctuary

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## ABSTRACT

Challenges in forest management are linked to limitations of agency capacities to adjust decisions, especially in the face of dynamic and complex resource access and new information. This study analysed the dynamic character of actors and institutions, and the factors that shaped access to forest resources in Cameroon using the case of Tofala Hill Wildlife Sanctuary. Mixed methods, including focused interviews, questionnaires and field observations were used to elicit information from actors interacting with forest resource. Data analysis used three different perspectives: literal; interpretative; and, reflexive. The key findings revealed firstly, that legal authority over management of forest resources does not necessarily equate actor's ability to control access. Ability is empowered by capacity that considers and deal with field realities. Secondly, formal institutions placed more value on negotiating legal status over forest resources and less value on seeking to understand and deal with management challenges in the field. Thus, this study argues that the transfer of rights from informal to formal institutions might not necessarily secure effectiveness in forest management. There is need to rethink the dependence on formal arrangements to regulate forest access and consider possible options for empowering local dwellers to engage in a more self-governed sustainable management approach.

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## 1. Introduction

Challenges in forest management are linked to limitation of agency capacities to adjust decisions, especially in the face of dynamic and complex resource access and new information (Stone & Nyaupane, 2014). Forest ecosystems are among the most biologically rich and genetically diverse ecosystems on earth and cover roughly one third of the global land area (Köhl et al., 2015). Ecosystems are important sources of livelihoods to millions of people and contribute to the national economic development of many countries (Whiteman, Wickramasinghe, & Piña, 2015). Globally about one quarter of the forest area is designated to multiple use forestry (Köhl et al., 2015). Forest usage has led to 3% declined of the total forest area, from 4128 Mha in 1990 to 3999 Mha in 2015 (Keenan

et al., 2015). Estimates also suggested that on a global level, forest resources loss is likely to slow down in the next 15 years (D'Annunzio, Sandker, Finegold, & Min, 2015). Notwithstanding, tropical forests are most at risk of conversion.

It is largely accepted that deforestation is mainly focused in the tropics and driven by conversion to agriculture (D'Annunzio et al., 2015; Macqueen, 2012; Mayaux et al., 2005; Schwartzman, Moreira, & Nepstad, 2000). Forest product harvesting by forest-dwelling community members, including hunting, timber and non-timber harvesting, is believed to be a major threat to the biodiversity of tropical forests worldwide (Gray, Bozigar, & Bilsborrow, 2015). Humans are continuously changing the land use to get access to natural resources through clearing of forests for agricultural activities and urban expansion (Romijn et al., 2015). In order to regulate and manage over exploitation of natural resources, conservation of biodiversity has been a central environmental concern (Butchart et al., 2010; Duffy, 2014; Rands et al., 2010). Conserving biodiversity is crucial for the long-term health and sustainable productivity of the world's forests (FAO, 2015). However, conserving biodiversity can be challenging in a rapidly changing world and

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requires collaborative efforts to succeed (Romanach, Benscoter, & Brandt, 2016). The quest to attain effectiveness in collaborative management of natural resources has led to a significant shift in conservation approaches since the late 1990s (Dressler et al., 2010; Duffy, 2014). This shift laid emphasis on the argument that natural resource governance is more than rule-making and includes a broader societal process based on social practices, values and principles (Cleaver, 2002; de Koning, 2011; Wiersum, Ingram, & Ros-Tonen, 2013). Nonetheless, issues of equity between various actors are still a challenge (Scarlett and Boyd, 2015).

Efforts to promote participation in forest management across Africa have been centred on decentralising forest management (Ribot, Lund, & Treue, 2010). Nonetheless, forestry decentralisation has provided few direct mechanisms for sustainable management (Adam & Eltayeb, 2016). In Cameroon, decentralisation of forest management has contributed less to participatory forest management (Ezzine de Blas, Ruiz-Pérez, & Vermeulen, 2011; Nkemnyi, De Herdt, Semakula, & Nkenglefec, 2014; Yufanyi Movuh, 2012). This affects sustainable forest management planning as well as conservation outcomes (Nkemnyi, De Herdt, Chuyong, & Vanwing, 2016). Effective planning in forest management should enable stakeholders to fit into broader objectives and anticipate the benefits of multi-agency and institutional planning (Romanach et al., 2016). Effective decision making in forest management can therefore benefit from information on forest access and the mechanism governing access (Ribot & Peluso, 2003).

The political dynamics behind access to forest resources can provide better insight into the patterns of inclusion and exclusion and the options for resource management (Ribot & Peluso, 2003). The factors shaping the interaction between actors and institutions influence their value, access to forest resources and ultimately, the contribution of forest resources to their livelihoods (Bond, 2014; Schure, Ingram, Arts, Levang, & Mvula-mampasi, 2015). The ability of people to renegotiate rules and relationships of resource access, use and transformation affects resource management outcomes (Cleaver, 2001). This study analysed the dynamic character of actors and institutions and the factors that shape access to forest resources in the Tofala Hill Wildlife Sanctuary (THWS), Cameroon and how the outcomes affect wildlife conservation. The study contributes to the argument that knowledge of individual resource-access could contribute to effective resource management, which in turn defines policy mechanisms that can affect positive change (Ribot & Peluso, 2003). This research builds on the conceptual framework highlighting the central role of institutions in mediating environmental-society relationships (Leach, Mearns, & Scoones, 1999) and the conceptual framework highlighting the theory of access to resources (Ribot & Peluso, 2003). These frameworks emphasised that access to resources is defined by people's capabilities. It dwells on the dynamic character of formal and informal institutions that shape actors' access to forest resources (de Koning & Cleaver, 2012; Schure et al., 2015). The research reported here was guided by three specific objectives: (i) to analyse actors ability to access forest resources in the THWS, (ii) to analyse the power-relations underlying access to forest; and, (iii) to analyse the implications of access to forest resources on wildlife conservation.

## 2. Materials and methods

### 2.1. Study area

The study was conducted in the THWS in the Lebialem-Highlands, South West Region of Cameroon (Fig. 1), within the geographical coordinates: 50°00' N 37'–50°00' N 42' and 90°00' E 53'–90°00' E 58' (Etiendem, Hens, & Pereboom, 2011). The forest types (ranging from lowland through mid-elevation to savannah

forests) provide various habitats that support high levels of biodiversity (Nkemnyi, Nkembi, Nkemanteh, & Nku, 2012). It is said to be home to 24 identified large mammals including two endangered great apes – *Gorilla gorilla diehli* and *Pan troglodytes ellioti* (Nkemnyi, Koedam, & De Vreese, 2011). The forest is used by the local people for agriculture, hunting, fishing, collection of timber and non-timber forest products amongst others (Nkemnyi, de Haas, Etiendem, & Ndobegang, 2013; Wright and Priston, 2010). The forest area is mainly composed of primary (70%) and secondary forests (30%). The forest on the plateau is similar to lowland forest structure with a closed canopy, with limited understory but has many dense vine tangles in the mid-storey. On the steeper slopes above the plateau the canopy is more open and the diversity of trees appears lower, whilst the understory remains relatively clear (Nkembi & Muh, 2012). The population of the Lebialem Highlands and the THWS are 35,000 and 7000 inhabitants respectively (Etiendem et al., 2011). Ten main ethnic communities (Fossimondi, M'mockmbin, Bamumbu, Folepi, Bechati, Banti, Igumbo, Besali, Bangang, and Nkong) inhabit the land situated adjacent to the THWS.

### 2.2. Data collection

The study starts by analysing how actors negotiate roles and relationships for resource access, with focus on forest access for livelihood (Ribot & Peluso, 2003). This is also based on the argument that informal and formal institutions are mediated by power relations and that this influences access to resources resulting in particular livelihood strategies and ecological change (Leach et al., 1999). Thus, this study analysed actors' abilities (rights, social structure and relations, power and authority) to benefit from forest resources (Fig. 2).

Institutions are considered here as formal and informal rules and associated enforcement mechanisms that shape access to forest resources (de Koning & Cleaver, 2012). In order to understand how forest resources were accessed by actors we applied three concepts suggested by Ribot and Peluso (2003) for mapping access. Namely, right-based, structural and relational access. Right-based access is sanctioned by law/custom and by convention or secured through theft, coercion and violence. Structural access refers to access to technology, capital, markets, labour, knowledge, authority and information. Relational access refers to access via the negotiation of social relations, identity, trust, reciprocity, patronage and clientelism, dependence and obligations.

Data were collected between January 2013 and June 2015. The units of analysis were 10 communities situated adjacent to the THWS. The main method of data collection included focused interviews, semi-structured questionnaires and field observations (see annex/Supplementary information for questionnaire and interview protocol). Actors' interests and ability to access forest resources were explored using semi-structured questionnaires. Questionnaire administration targeted households and was designed to elicit information on forest-related livelihood activities, how access is gained, maintained and controlled. It also explored the implications of access to forest resources on wildlife conservation. A total of 245 households were sampled randomly in six communities (approximately 10% of households per community). The selection of the sampled communities followed the guidelines outlined by Tongco (2007). The sampled communities were selected to represent the structural setting and the cultural diversity of the study areas. A total of 46 households were sampled in Bechati, 30 in Banti, 48 in Besali, 39 in Folepi, 42 in M'mockmbin and 40 in Fossimondi community (Fig. 1).

Focused (in-depth) interviews (Kvale & Brinkmann, 2009) were used to explore the power-relations governing access to forest resources. The interview process enabled the understanding of how power and authority are distributed amongst actors and

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