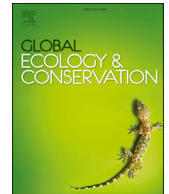




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Original Research Article

Community use and perceptions of a biodiversity corridor in Myanmar's threatened southern forests

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ABSTRACT

With the advent of democratization in Myanmar in 2010, it is a pivotal moment for Myanmar's natural environment. Myanmar's southern forests are a biodiversity hotspot and are receiving a great deal of conservation investment from international non-governmental organizations. Given the important role that local communities play in conservation, the objective of this study is to explore the perceptions of local communities toward a biodiversity corridor in this forest landscape. We conducted 263 individual surveys in eight communities along the Banchaung River in a primarily Karen area of Tanintharyi. We found that the vast majority of respondents in these forest-dependent communities (98%) see changes in the forest and are worried about its future (92%). The primary changes they perceive are degradation (94%) and less wildlife (94%). The most commonly mentioned concerns that people have for the forests are the threat of outside companies claiming land (34%) and climate change (31%). Villages have rules regarding extraction of timber and wildlife from the forest but they do not have secure tenure. In fact, five of the communities were actively trying to register their forests with either the Government of Myanmar's Forest Department or the Forest Department of the Karen National Union, the de facto government in much of the Karen area. Given people's high dependence on the forest and high levels of concern for it, we propose that the government and civil society prioritize policies and programs that facilitate and institutionalize the involvement of local communities in decision-making and management of this landscape at this critical juncture of Myanmar's history.

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1. Introduction

Myanmar's southern forests in the Tanintharyi region are a biodiversity hotspot at the crossroads of biogeographic regions and they support a unique assemblage of species (Myers et al., 2000; Tantipisanuh et al., 2016; Moo et al., 2018). Until recently, they were protected by a volatile political situation in a country with an authoritarian regime (Donald et al., 2015). However, with the advent of democratization in Myanmar in 2010 that initiated the easing of sanctions and increased commercial

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access to these forests, these forests are increasingly under threat from commercial exploitation for oil palm, rubber, infrastructure, mining, and timber (Webb et al., 2014; Kattelus et al., 2014; Lajeunesse Connette et al., 2016; Nicholas et al., 2017). Thus, it is a critical juncture for Myanmar's environment (Kattelus et al., 2014; Bhagwat et al., 2017; Prescott et al., 2017).

Concurrent with the economic development, international environmental conservation organizations are investing in this geographic region and developing strategies to conserve its biodiversity. Due to formerly restricted access, biodiversity data and threat assessment is lacking yet critically needed in order to develop effective strategies. The documenting of Tanintharyi's biodiversity is now underway, with studies of forest loss (Leimgruber et al., 2005), the presence of charismatic megafauna like tiger (Aung et al., 2017) and rare bird species such as the Gurney's pitta (Donald et al., 2014), the impact of forest loss on geckos (Connette et al., 2017), and mapping of forest types (Connette et al., 2016).

While documenting Tanintharyi's biodiversity is an important step, a diversity of strategies are going to be necessary to conserve it (Persha et al., 2010). These strategies will be more effective if they have the support from and participation of communities. Across other large forested and populated landscapes, communities play an important role as forest managers. For example, in Nepal and the Philippines over a third and in Mexico over two-thirds of the forests are under community forestry (Rights and Resources Initiative, 2014). Forests under community management have been found to have deforestation rates similar to protected areas (Hayes, 2006; Porter-Bolland et al., 2012), and, in areas of high pressure, may perform even better (Nolte et al., 2013). Even traditional strictly protected areas like national parks are more successful when local communities are recognized as stakeholders and included in management (Oldekop et al., 2016).

Just as documenting biodiversity is necessary to effectively design strategies to conserve it, understanding people's perceptions and the local management context are also important for planning effective interventions. Conservation is more successful when it builds on people's existing value structures, cultural context, and institutions (Waylen et al., 2010; Brooks et al., 2013; Chaigneau and Daw, 2015). Understanding the perceptions of people who rely on the forests for their livelihood as well as the local management norms and institutions can provide a baseline for collaborating with local communities and increase the likelihood they will participate (Chaigneau and Daw, 2015).

Building on existing values is preferable for a number of reasons. First, it is much more effective to build on existing values than try to change values, which can be not only difficult but also unrealistic (Manfredo et al., 2017). It is also more sustainable to build on motivations that arise from within communities, i.e. intrinsic motivations, rather than relying on motivations arising from outside communities, i.e. extrinsic motivations, (Pagdee et al., 2006; Nilsson et al., 2016; Cetas and Yasué, 2016). One reason for this is that extrinsic motivations can result in negative consequences for long-term conservation. For example, a project in Mexico that gave payments for ecosystem services (PES) shifted people's values from being conservation-based to monetary-based and replaced people's intrinsic conservation values with external financial incentives as the primary driver of conservation (Rico García-Amado et al., 2013).

Understanding how different groups of people vary in their use and perceptions is also important for sustainable community conservation (Waylen et al., 2010). An awareness of these differences can help ensure the fair distribution of benefits and avoid the elite capture of benefits (Iversen et al., 2006; Baynes et al., 2015) and ensure support and buy-in for management practices from different groups, which leads to better conservation outcomes (Agarwal, 2010).

In this paper we explore people's relationships with the forest in one area of the Tanintharyi region of Myanmar. Specifically, we describe people's use of the forest, their perceptions of forest benefits and how the forest is changing, their concerns about the forest, and how they manage the forest. We also explore how people vary in their relationship with the forest in terms of demographic and socio-economic characteristics.

2. Methods

2.1. Study area

We conducted the study in eight villages located along the Banchaung River near the Myintmolekhat Ridge running north to south in Tanintharyi (Fig. 1). The area where these eight villages are located has been identified as an important area for securing the connectivity of the landscape (WWF Myanmar 2015; Tantipisanuh et al., 2016) (Fig. 1).

In our study area, as in the greater Tanintharyi Region, the Karen people are the majority of the rural population. The Karen are a diverse group of people (South, 2007) that live in the eastern side of Myanmar and the western side of Thailand. The Karen people are known for strongly identifying with the environment as part of their cultural and political identity and have strong traditions of conservation and protection of their environment (Tomforde, 2003; Santasombat, 2004; Delang and Wong, 2006).

2.2. Data collection

A survey of 263 individuals was conducted in May 2015 based on methods used previously in Myanmar and elsewhere (Allendorf et al., 2006; Allendorf, 2007). We randomly selected a minimum of 30 households from ledgers maintained by chairmen in each village. In villages with fewer than 30 households, we interviewed someone at each household. Only people over 18 years old were interviewed. To assure representation of the perspectives of different residents, each interviewer used a sampling method that ensured diversity based on age, gender and household position. At the first house the husband was interviewed, the wife at the second, the grandfather at the third, the grandmother at the fourth, the eldest child 18 years or

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