

When the blanket is too short: Potential negative impacts of expanding indigenous land over a national park in a high priority area for conservation



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ABSTRACT

Land claims by indigenous peoples can cause changes in established protected areas. The consequences of such changes for biodiversity conservation will be context-dependent and influenced by characteristics of the indigenous population as well as the protected area affected. In the Cerrado-Caatinga ecotone of Brazil, there is an ongoing legal process to expand the Xacriabá Indigenous Land. The Xacriabás are claiming an additional 433 km², which overlaps with one third of Cavernas do Peruaçu National Park. I used local scale data and occupancy modelling to show that expanding this indigenous land at the expense of the already reduced area under strict protection in the Cerrado and Caatinga is likely to decrease the national park's conservation effectiveness. My analysis suggests that intensification of human presence in the overlapping area between the two land designations will result in loss of native vegetation, increase in the number of fires and might have a negative impact on populations of more sensitive species.

1. Introduction

Protected areas (PAs) are a cornerstone of conservation policy and have been established worldwide in order to mitigate the current environmental crisis (Watson et al., 2014). PAs can avoid conversion of natural vegetation (Carranza et al., 2014; Geldmann et al., 2013), support higher levels of biodiversity than unprotected lands (Coetzee et al., 2014; Gray et al., 2016), deliver crucial ecosystem services (Soares-Filho et al., 2010) and contribute to local economies in some regions (Balmford et al., 2009). However, a recent global increase in PA downgrading, downsizing and degazettement events (PADDD - see Mascia and Pailler, 2011 for definition) may pose a threat to the long-term conservation benefits these areas are expected to deliver. As demand to access and use natural resources are increasing worldwide (Rands et al., 2010), PADDD will become a crucial topic of land use and conservation policy in the near future.

In Brazil, PADDD events in the last 15 years were mainly driven by pressures from the agribusiness and energy sector (Bernard et al., 2014), but land claims by indigenous peoples can also result in PADDD. In the latter case the outcome is not necessarily negative from a conservation perspective, as areas managed by traditional populations may be effective in preventing deforestation (Carranza et al., 2014; Nepstad et al., 2006). Therefore, the consequences for biodiversity will be

context-dependent and largely influenced by characteristics of the indigenous population claiming the land (population size, population density, intensity of natural resources use, type of land use implemented, etc), as well as features of the PA affected (category, implementation level, management effectiveness, etc).

Recent data show that 20% of all land claims by local communities in Brazilian federal strict PAs are made by indigenous groups, representing 27 cases in total – 18 of them in national parks (Madeira et al., 2015). A case in point is the proposed expansion of the Xacriabá Indigenous Land (XIL) over roughly one third of Cavernas do Peruaçu National Park (CPNP) (FUNAI, 2014), a strict PA (IUCN category II) located in the Cerrado-Caatinga ecotone of Brazil (Fig. 1A). The 568 km² CPNP was created in 1999 to protect the unique speleological system of the Peruaçu river valley, as well as the variety of species found in extensive areas of dry forests and savannas. CPNP is a high priority area for biodiversity conservation in Brazil (WWF-Brasil, 2015), supporting high diversity of endemic species restricted to caves (do Monte et al., 2015; Trajano et al., 2016), several threatened animal and plant species (Geoclock, 2005), and more than 70% of all large mammals found in the Cerrado (Ferreira and Oliveira, 2014). Alongside this impressive biodiversity, the park harbours numerous caves – at least 19 of them are in the area claimed by the Xacriabás – and archaeological sites of international relevance, which is leading to a

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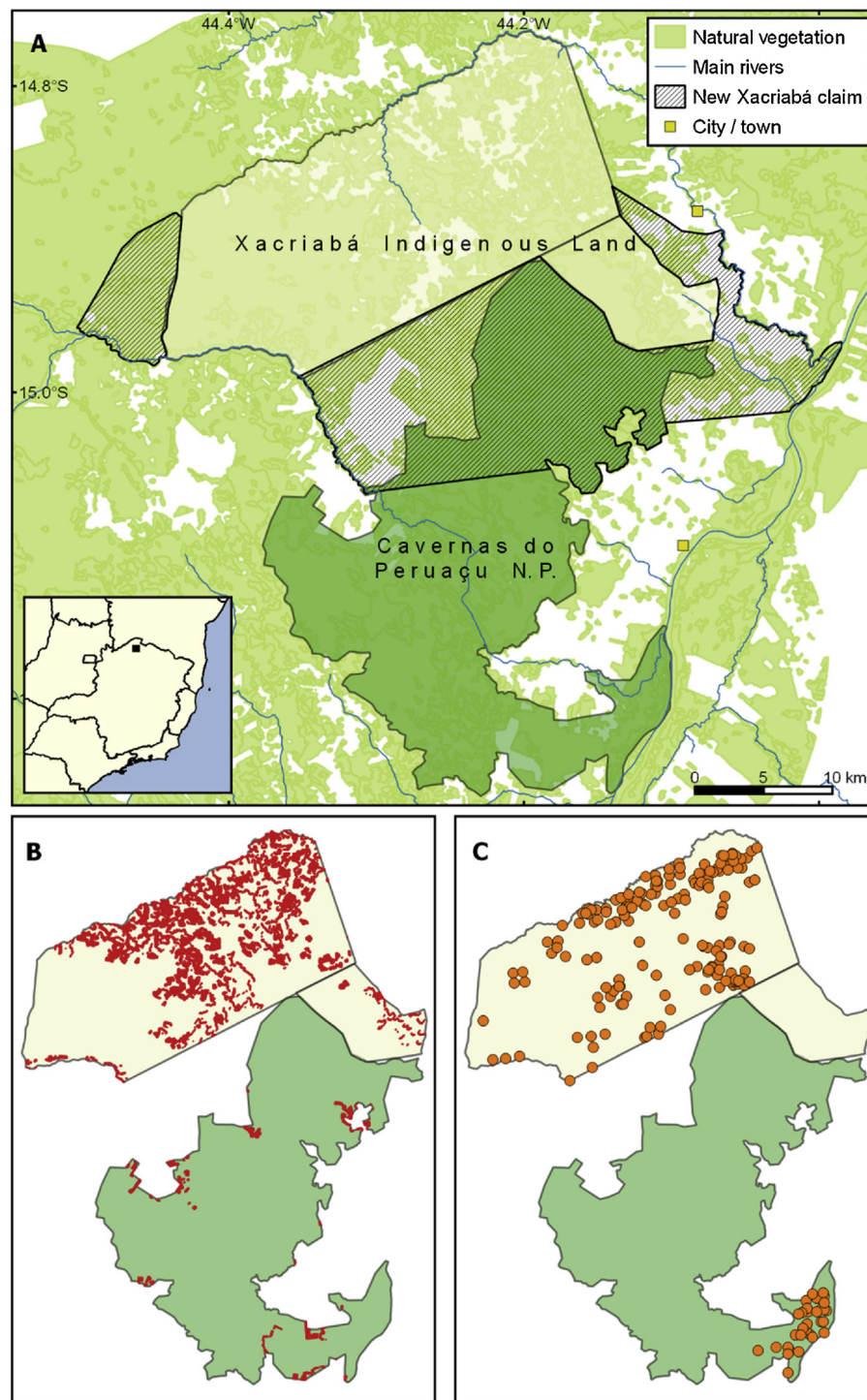


Fig. 1. A) Location of Cavernas do Peruaçu National Park, Xacriabá Indigenous Land and the new Xacriabá claim; B) Deforestation between 2010–2012; C) Fire occurrence between 2010–2016.

proposal for recognition of the region as a UNESCO World Heritage site. Currently, the legally designated XIL encompasses 530 km² adjacent to CPNP and was established through two decrees, in 1987 and 2003 (ISA, 2018a), following years of struggle for their right to the land (de Almeida, 2006). Approximately 9000 Xacriabás live in this area (ISA, 2018a) engaged mainly in small scale agriculture and cattle ranching (Clementino and Monte-Mór, 2006; ISA, 2018b; Paraiso, 1987), which are implemented using similar techniques adopted by the local non-indigenous society (Paraiso, 1987).

A study approved by FUNAI (Brazilian government agency for

indigenous affairs) argues that the current area does not represent the entirety of the land donated to the Xacriabás in the 18th century and claims an additional 433 km² to be designated as indigenous land (FUNAI, 2014), of which around 180 km² overlaps with CPNP (Fig. 1A) – mostly in a zone designated to safeguard species and natural habitats of outstanding scientific value according to the national park's management plan (Geoclock, 2005). The remainder of the new claim is privately owned land, part of it designated as a multiple-use protected area (IUCN category V) where human occupation and use of natural resources are permitted. The additional Xacriabá claim has not yet

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