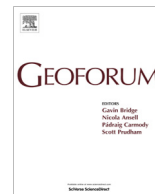




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# Why are there cattle in the conservation area? Social barriers to biofuel governance in Brazil

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## ABSTRACT

Amid a rapid expansion of global investments in biofuels there has been an equally rapid proliferation of concerns about the inadequacies of current governance schemes to mitigate the environmental impacts of growing agroenergy production. Managing the land use practices of small producers in a way that ensures their activities are financially and environmentally sustainable is a particularly pressing issue that has been overlooked in research on biofuel governance. I illuminate these challenges through an ethnographic study on the multiple breakdowns of environmental governance in the Southern Goiás region of Brazil, a major expansion region for sugarcane ethanol production. I focus on one of the most pressing compliance issues among small and medium size sugarcane farmers; their persistent use of federally mandated conservation areas for cattle production. I find that while these transgressions are often perceived by administrators and officials as being the result of a lack of “environmental awareness” among rural farmers, they are better understood as a safety net to protect landowners against perceived risks of sugarcane production. These violations are further enabled by continuing ambiguity in the enforcement structure for conservation legislation in the region. Recalibrating regulatory systems to better address these issues of accountability and risk is a critical step toward improving environmental governance of global biofuel commodity chains.

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## 1. Introduction

At the intersection of widespread public concerns about human-induced climate change and the geopolitical necessity to diversify energy sources, biofuels have been identified in the international community as a strong candidate for substituting petroleum at a global scale. Yet in the seven years since President Bush praised biofuels as a cure for America’s gasoline “addiction” and the Lula administration launched its campaign of ethanol diplomacy, this once vaunted “green” energy has been assailed by numerous critics who remain dubious of its socio-environmental benefits. In the aftermath of these politico-scientific controversies, renewed attention is being given to the effectiveness of environmental governance in biofuel supply chains; certifications in particular have emerged as a controversial mechanism for biofuel refineries to individually prove that they are monitoring and mitigating potential harms caused by their activities.

Much of this criticism has been directed toward the Brazilian sugarcane industry, where the effects of expanding production on conservation areas and land concentration have raised concerns about regulatory oversight of the transnational companies that are growing their presence in the country’s interior. These

corporations have begun revamping their compliance systems to demonstrate adherence to domestic environmental legislation and international standards; in doing so, they aim to prevent sanctions and negative publicity that could hamper their ability to capitalize on new biofuel markets abroad. Scholarly debate on the efficacy of these governance systems tends to focus on the activities of agricultural corporations and the large sugarcane producers that supply them, due to Brazil’s historical problem of land inequality. While this is indeed a pressing concern, criticisms of large monoculture production models and landgrabbing tend to overlook the many small and medium-sized farms in Brazil that also plant sugarcane and present unique environmental governance challenges pre-dating the current biofuel boom. In this article, I therefore focus on the specific governance issues and barriers that arise in supply chain relationships between these smaller sugarcane farmers and biofuel refineries (locally called *usinas*).

To illuminate these challenges, I explore the common practice of farmers raising cattle on parts of their property that should be protected as conservation areas by federal law. Ubiquitous violation of these environmental reserves dates as far back as their establishment in Brazil’s forest code of 1965, yet the continued transgressions in rural sugarcane regions are perhaps surprising given that the highly professionalized, export-oriented companies entering these areas have adopted a renewed commitment to environmental compliance. Given their increased emphasis on adher-

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ence to domestic legislation and transnational biofuel standards, why have they failed to produce substantial gains in compliance among their suppliers?

Through ethnographic fieldwork among farmers and ethanol companies in one micro-region of Goiás, I find that these environmental violations are a product of risk and accountability issues that are misrecognized by *usina* administrators as cultural issues of environmental consciousness. To demonstrate this, I first provide relevant background context for understanding the historical expansion of biofuel production in rural Goiás that has shaped contemporary farmer-*usina* relationships. I then describe the central problem – small farmer violations of Brazil's forest code and perceptions by company representatives about the “backward” mentality driving these violations. Drawing upon post-structuralist frameworks of environmental governance, I argue that these perceptions misrecognize farmer concerns about production risk and gaps in enforcement as problems of cultural traditionalism. These environmental discourses of consciousness-raising have the effect of depoliticizing and obscuring the law enforcement issues, social relations, historical land use practices and market exigencies that intersect in the conservation areas where cattle graze today. I conclude with a discussion about how environmental governance schemes in general and the emerging wave of biofuel certifications in particular can be reconfigured to address the accountability issues surrounding land use practices of sugarcane farmers, while at the same time reducing the risks they face in maintaining protected areas. A better understanding of the barriers to sustainable production and regulation in biofuel expansion zones of Brazil can provide insights into similar challenges that are likely to arise in other regions of the global South where the biofuel sector is expected to grow rapidly.

## 2. Background

With the expansion of biofuels, critics across a range of disciplines have raised concerns about the effects of diverting crops for energy production, primarily in terms of potential increases in global GHG emissions (Searchinger et al., 2008; Tsao et al., 2012), and negative impacts on food security (Clayton, 2008; Rosegrant, 2008; Pimentel et al., 2009). In Brazil in particular, planned expansion of sugarcane ethanol production has spurred scientific controversy over direct land-use effects in the savannah-like *cerrado* biome as well as indirect effects in the Amazonian basin (Sparovek et al., 2007; Martinelli and Filoso, 2008; Lapola et al., 2010).<sup>1</sup> In this context, the large sugarcane companies that are responsible for the bulk of expanding ethanol production in the interior are all in some stage of implementing sustainability programs in order to mitigate image risk that might preclude their ability to access potential export markets. This involves both improving compliance with domestic legislation and obtaining one or more of the international biofuel certifications that are currently under development, such as Bonsucro and RSB.

My research has explored the changing production practices of new *usinas* in one major biofuel hotspot – the southern portion of Goiás state, which extends from the Mato Grosso border to the Minas Gerais border in the east (Fig. 1). This region has been an attractive site for sugarcane expansion – mainly by large MNCs such as Shell, BP, Bunge and others in partnership with national sugarcane enterprises – because of its largely flat topography, inex-

pensive land values and closeness to these companies' existing production sites in São Paulo.

An important factor complicating the relationship between the newly arrived ethanol companies and the farmers that either rent land to them or directly supply sugarcane is that the latter generally have little experience with this crop. They are the descendants of migrant pastoralists and agriculturalists, primarily from São Paulo and Minas Gerais, who settled Goiás in successive waves of rural development since the earliest large land settlements were carved out in the 18th and 19th century by *coronels* – wealthy ranchers that took advantage of the absence of the Brazilian state in the interior to consolidate power over large tracts of territory (Ferreira and Mendes, 2009). Future expansions were driven by government-led development schemes including the “March to the West” of the 1930s, and the military dictatorship's push in the 1970s to modernize agricultural production and further develop rural regions to spur commodity exports (Pietrafesa et al., 2011a). These waves of migration created a land use system in South Goiás divided between ranching and large monoculture crops such as soy, corn, cotton and rice. While state-led development schemes also brought some *usinas* to the region in the 1970s under the banner of the PROALCOOL program, the bulk of the existing *usinas* were constructed during an ethanol boom that began in the mid-2000s, spurred by rising demand from flexfuel cars and the prospects of opening vast new biofuel markets abroad (Martines-Filho et al., 2006).

## 3. Method

The findings of this paper are based on intensive fieldwork in a micro-region of South Goiás that I will call Nova Terra, a municipality that serves as an important indicator of the experience *usinas* are having with environmental governance in this critical expansion zone. I chose Nova Terra as a case study because it is typical of the model of biofuel-based development that is occurring throughout the *cerrado*, in which recent waves of sugarcane expansion led by transnational corporations are displacing other monocultures as well as ranching activities. Nova Terra has a population of approximately 40,000 and a land use profile that was predominantly cattle-based with a smaller but significant output of soy and corn until large, sugarcane-based MNCs arrived in the mid-2000s.<sup>2</sup> Since that period, cane production has grown to an estimated 60,000ha, with prospects of tripling the sugarcane area to maximize the potential of the two *usinas*.

Nova Terra also provides a valuable case study because the challenges the two *usinas* face in ensuring compliance with environmental regulations throughout their supply chains are typical of the experience of other biofuel companies in the region. In exploratory visits, I found that both *usinas* have assembled sustainability teams that track the requirements of domestic environmental legislation and various sustainability certifications, including general standards such as those of the ISO as well as standards specific to sugarcane ethanol. Since the company managers cannot know in advance where distributors will want to sell their products, they seek multiple certifications to maximize export opportunities. The fact that the requirements in these various standards have a substantial degree of overlap with each other as well as domestic legislation facilitates the work of compliance, so that the two companies can work with local consultants to identify and collect all of the data and documents they might need in a uniform process. The teams' primary responsibility is to create internal systems such that adherence to these various regulations is

<sup>1</sup> While I witnessed some indications of indirect land-use change (ILUC) in the region I studied—with several residents I interviewed recounting stories of friends who had rented their lands to *usinas* to raise cattle further North—discussion of this relationship would be speculative. For the purposes of this article, I therefore solely address direct land-use issues related to conservation areas farmers maintain on their own land.

<sup>2</sup> Population and agricultural productivity data are based on IBGE and INCRA statistics that were provided to me verbally by local producer associations.

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