



## From contested to 'green' frontiers in the Amazon? A long-term analysis of São Félix do Xingu, Brazil

Marianne Schmink, Jeffrey Hoelle, Carlos Valério A. Gomes & Gregory M. Thaler

To cite this article: Marianne Schmink, Jeffrey Hoelle, Carlos Valério A. Gomes & Gregory M. Thaler (2017): From contested to 'green' frontiers in the Amazon? A long-term analysis of São Félix do Xingu, Brazil, *The Journal of Peasant Studies*, DOI: [10.1080/03066150.2017.1381841](https://doi.org/10.1080/03066150.2017.1381841)

To link to this article: <http://dx.doi.org/10.1080/03066150.2017.1381841>



© 2017 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



Published online: 31 Oct 2017.



Submit your article to this journal [↗](#)



View related articles [↗](#)



View Crossmark data [↗](#)

## From contested to ‘green’ frontiers in the Amazon? A long-term analysis of São Félix do Xingu, Brazil

Marianne Schmink, Jeffrey Hoelle, Carlos Valério A. Gomes and Gregory M. Thaler

The Amazonian frontier, shaped by developmentalist policies in the 1970s and 1980s and a socio-environmental response in the 1990s, has historically been a site of widespread violence and environmental destruction. After the imposition of new environmental governance measures in the mid-2000s, deforestation rates in the Brazilian Amazon dropped to historic lows. Many analyses of this ‘greening’ of Amazonia operate within a limited historical perspective that obscures complex and still-evolving contestation among diverse actors and projects. The long-term evolution of the frontier is illustrated dramatically in the municipality of São Félix do Xingu (São Félix). Emerging as a ‘contested frontier’ in the 1970s, São Félix in the early 2000s lost over 1000 km<sup>2</sup> of forest annually, but since the mid-2000s, the municipality has entered a period of ‘greening’. This contribution deploys a historical political ecology framework to analyse how decades of agrarian frontier change and land conflicts among actors on the ground interacted with shifting national policy debates. Nearly a half-decade of field research in São Félix is combined with data from a 2014 field ‘revisit’ to situate the current ‘greening’ of policy and discourse within the longer term history of frontier development, revealing positive social and environmental developments and persistent contradictions and uncertainties.

**Keywords:** Amazon; conflict; frontier; governance; political ecology; sustainability

São Félix do Xingu is still emerging from its past as a lawless land.

– NGO employee, 2014

### 1. Introduction

Since the early 2000s, Brazil’s violent Amazon frontier has been transformed in popular discourse into a ‘deforestation success story’ (Boucher et al. 2014) of forest conservation and ‘green’ agricultural production. This transformation is grounded in what Lapola et al. (2013) characterise as a ‘pervasive transition of the Brazilian land-use system’, yet this apparently epochal transition is only the latest in a long history of shifting policy frameworks and discourses in modern Amazonia. Over the past half-century, state policies for the Brazilian Amazon have shifted from direct appropriation of land in support of elite and corporate interests to agrarian resettlement projects favouring smallholders, to *laissez-faire* neoliberal policies favouring private enterprise and, most recently, to new forms of ‘green grabs’ of territories for environmental purposes (Fairhead, Leach, and Scoones 2012). These shifts are linked to complex and ever-changing national and international coalitions of actors and state–society relations (Klein 2015, 1142). Policy discourse turned from a focus on cattle as a more productive land use than forests to a new

valorisation of forests as sources of environmental services, while large and small producers became ‘green’ frontier actors within a neoliberal discourse that intertwined economics and the environment in a vision of continuous progress (Baletti 2014; Campbell 2015).

Scholarly treatments paint this most recent transformation in eschatological terms. The ‘End of Deforestation’ foreseen by Nepstad et al. (2009) unselfconsciously evokes an Amazonian ‘end of history’ (Fukuyama 1989), in which policy and technology rein in unruly subjects and environmental destruction. Yet as increasing deforestation rates since 2012 and policy reversals under the current administration of Brazilian President Michel Temer make clear, Amazonian deforestation – and history – are far from over. Much recent work on Amazonian land use has analysed the ‘greening’ of the frontier in relation to the rapid agribusiness-driven deforestation of the late 1990s and early 2000s (Assunção, Gandour, and Rocha 2012; Lapola et al. 2013; Nepstad et al. 2014), but this limited historical perspective risks simplifying and naturalising the diverse and sedimented actors and processes shaping Amazonian history. This contribution analyses half a century of frontier development in the eastern Amazonian municipality of São Félix do Xingu (hereafter abbreviated as São Félix), in southeastern Pará State. From a longer term historical perspective, the tensions and contingencies of frontier ‘greening’ come into sharper focus, and support critical reflections on what may come next.

The reduced deforestation and ‘greening’ of Amazonia is often attributed to government policies (Arima et al. 2014; Nepstad et al. 2014), but these interventions only partially explain recent changes. As Cleary (1993, 343) points out, the Brazilian state is ‘both central and irrelevant’ in the evolution of Amazonian frontiers, due to the diversity of social groups vying for access to resources and the importance of their agency in mediating the impacts of social policies over time and across different contexts (Schmink and Wood 1992; Browder et al. 2008). Especially since the extensive military government interventions to promote occupation of the Amazon beginning in the 1970s, the state has played a key role in frontier development through incentive policies for large investors, official colonisation programmes for small farmers, massive direct investments and a strong military presence, with contradictory results (Schmink and Wood 1992). Although largely focused on support for large investors, government policies at times favoured workers and small farmer interests, especially when growing conflicts over resources led to persistent tensions (Schmink and Wood 1992; Pereira 2015). For this reason, Browder and Godfrey (1997, 100–01) defined the Amazon frontier as a ‘spatial continuum on the extensive margin of the nation space where populist and corporatist forces periodically intermingle to seek control of resources in an open-access environment’. The ‘periodic intermingling’ through time and space of large and small producers on the Amazon frontier responds to shifts at various levels in the ongoing struggle over competing visions and practices of Amazonian development.

Our analysis of the complex evolution of the São Felix frontier highlights the key interactions between top-down policy interventions and frontier actors. Previously ‘lawless’ frontier regions provide stark examples of the limits and contradictions of the expansion of territorial policies, and how they are mediated by complex and changing alliances and coalitions, as well as the diverse and evolving subjectivities and lived experiences of frontier residents in relation to their environment (Peluso and Lund 2011). Each local frontier setting constitutes a unique ‘matrix’ of contested frontiers, in which different groups at different times share specific interests and positions linked to their cultural, ideological and political perspectives, and also have access to different sources and degrees of power (Schmink 1994). At different moments, policies have favoured contrasting or complementary visions of ‘populist agrarian utopia’, championed by wage labourers, migrant

smallholders, and homesteaders, versus industrial resource extraction models, supported by 'large' actors (highly-capitalised, landed elites) (Campbell 2015, 26). Within this dynamic policy landscape, Brazilian Amazon colonists, both large and small, actively participate in shaping land and resource policies, shifting their own strategies and discourse to gain advantage in their claims to property (Campbell 2015).

From the developmentalist policies that opened the Amazon to colonisation and 'progress' through forest conversion to agriculture, to the socio-environmental response beginning in the 1990s, to the current emphasis on neoliberal environmental governance, Amazonian policy and discourse have been shaped by the interplay of external, top-down interventions with localised responses by diverse stakeholder groups having different levels of power and influence. We use this political ecology framing of the evolving frontier to focus on the politics of natural resources at multiple levels over time (Paulson, Gezon, and Watts 2003; Robbins 2003; Wilshusen 2003), with emphasis on the negotiation process in different arenas and scales, by actors with different degrees of power and distinct relations with natural resources (Paulson, Gezon, and Watts 2003, 210; Schmink and Wood 1992, 2012). We build on seminal political ecology studies that examined the conflict and destruction following the opening of the Amazon region in the 1970s through the 1980s (Foweraker 1981; Bunker 1985; Schmink and Wood 1992), complementing these early works with a long-term study of frontier dynamics to analyse the evolving Amazon frontier over the past half-century. We then use this long-term perspective to situate and analyse the current 'greening' of policies and practices and to reflect on future prospects and challenges of Amazonian sustainability.

The long-term dynamics of the frontier are vividly illustrated in the large Amazonian municipality of São Félix, where successive frontier expansion phases were produced by relationships among an evolving set of social actors responding to drastic shifts in policies at different levels, as well as to their own changing identities and their social learning about the environmental limits and feedbacks of land-use changes. Through a focus on São Félix, we especially examine responses to two major efforts by the Brazilian federal government to control vast areas of Amazonian land, first in the 1970s under the military government's Amazon development scheme, and second in the mid-2000s with the greening of the frontier into a space of 'environmentally responsible' production.

From 1976 to 1989, author MS conducted field research in the São Félix region in support of the 1992 book *Contested frontiers in Amazonia*. The book traced the dramatic evolution of frontier contests over land and forest resources in southern Pará and São Félix municipality, based on participant observation and in-depth interviews with hundreds of diverse key informants carried out during eight extended field visits.<sup>1</sup> The prior experiences of other research team members (authors JH, CVAG and GMT) in São Félix and other regions of Amazonia also contributed groundwork for understanding the regional and historical context for recent changes in São Félix. In July–August 2014, drawing on these prior visits and contacts, the four co-authors conducted in-depth interviews and

---

<sup>1</sup>We draw on additional research in São Félix by Marianne Schmink from 2006 to 2014, along with other academic studies of the region, to help understand the subsequent transformations. In 2012, *Contested frontiers* was translated into Portuguese as *Conflitos Sociais e a Formação da Amazônia* [Social conflict and the formation of the Amazon], and in 2014, Schmink returned to São Félix to publicise and distribute copies of the book to long-term collaborators, governmental and non-governmental institutions, politicians and researchers. This visit provided an opportunity to observe changes in the municipality and relate them to long-term dynamics through Schmink's previous research.

administered questionnaires with dozens of respondents in São Félix, the neighbouring municipality of Tucumã, and the state capital of Belém.

In the absence of systematic individual-level longitudinal data, we used open-ended interviews with key informants and a standardised survey to capture how respondents' own experiences of environmental, economic and social change shaped their perspectives on development trajectories in São Félix. The team interviewed a purposive sample of 29 respondents consisting of 8 large-scale ranchers, 9 smallholders and 12 urban leaders. These three occupational categories were selected to represent key groups in São Félix with distinct histories of settlement, production and visions of development. The majority of the 17 rural producers we interviewed were referred to us or contacted directly by local nongovernmental organisations (NGOs), and they were often model participants in NGO pilot projects. As such, our respondents were engaged with a coalition of environmentally focused local NGOs and producer groups promoting agro-ecological practices. The perspectives reported here are not representative of the broader population, but instead show how people most engaged in efforts to advance 'alternative development' projects articulated their ideas about development in São Félix. We complemented the 29 questionnaire-guided interviews with 8 interviews with key informants (some of them also questionnaire respondents) who provided valuable background information, long-term perspectives, or privileged knowledge on political, economic or social dynamics.

Cumulatively, this long-term research and the 2014 'revisit' (Rigg and Vandergeest 2012) provide the basis for a political ecology analysis of Amazonian development and environmental policy, with a focus on the ways that key stakeholder groups responded to, but also influenced and transgressed, external laws and constraints, shaping the frontier over the past 50 years. The empirical material is divided into two parts. The first part comprises a historical account of the political ecology of the São Félix frontier from the 1970s to the present. The second part draws on recent fieldwork to illuminate the past decade of frontier 'greening' from the perspective of São Félix residents.

The results show that frontier transformations have been related to policy shifts, but also to the learning that has occurred among stakeholders living through various regimes and adapting their practices based on their experiences and policy constraints. The findings reveal enthusiasm for socio-environmental initiatives by the small number of stakeholders involved in them, but also the precarious nature of the current green détente, given persistent obstacles to land reform, the political-economic strength of agribusiness, the limited impact of outreach programmes, and growing resentment against heavy-handed command-and-control governance measures.

## 2. Evolving frontiers, 1970s–2000s

### 2.1. *From conflict to the 'closing' of the frontier, 1970s–1980s*

The contested Amazon frontiers of the 1970s and 1980s were the result of an ambitious land and resource takeover by the military government after its 1964 coup, generating multiple and persistent disputes among native inhabitants and migrant settlers, as well as corporate loggers, ranchers and miners (Ianni 1978; Martins 1980; Pinto 1980; Foweraker 1981). Using the full force of its repressive state apparatus, the military regime seized control of thousands of square kilometres of lands belonging to the Amazonian states, and imposed federal government control over state bureaucracies charged with governing access to land and resources, supplanting them with powerful new federal agencies (Bunker 1985; Schmink and Wood 1992).

Under the high-modernist discourse of the time, unproductive indigenous peoples needed to be integrated into Brazilian society, and small farmers were seen as technologically backward and environmentally destructive (Wood and Schminck 1978). These views justified the appropriation of their land and resources, to be exploited by more dynamic capitalist producers favoured by the military government in its modernisation efforts. The historic concentration of land in large estates that had begun under the colonial regime for forest products like rubber and Brazil nuts was to be supplanted by new forms of legitimation that perpetuated the unequal distribution of land in the region. Cattle production was argued to be the logical ‘vocation’ for the Amazon region’s unproductive and ‘empty’ lands, replacing the useless and even ‘senile’ forests, not yet recognised as providers of environmental services such as carbon sequestration (Schminck and Wood 1992). The Amazon frontier became a ‘lawless land’ where conflicts over land and resources played out in often-violent encounters with unpredictable outcomes, while land agencies handed out dubious titles to gain political support, creating an inequitable land market that facilitated the dispossession of smallholders by larger investors (Martins 1980; Pinto 1980; Foweraker 1981; Schminck and Wood 1992, 2012; Pereira 2015). These struggles often pitted smallholders – indigenous and traditional inhabitants as well as migrants from other regions who sought land to farm as ‘posseiros’ (homesteaders whose rights to unoccupied public land could be recognised by official titles) – against large investors known as ‘grileiros’ (for the ‘grilos’ or crickets used to make falsified documents appear old and authentic) who adopted multiple strategies to seize control of public lands (Schminck and Wood 1992, 1–2, 13–14; Pereira 2015; Torres and Alarcon 2017, 67).

The southern portion of the state of Pará was the epicentre of conflict, witnessing rapid deforestation, land wars, mining conflicts and controversies over dams as the frontier moved westward towards São Félix in the 1970s and 1980s (Figure 1). The São Félix region had long been settled by indigenous groups, rubber tappers, fisherpeople and

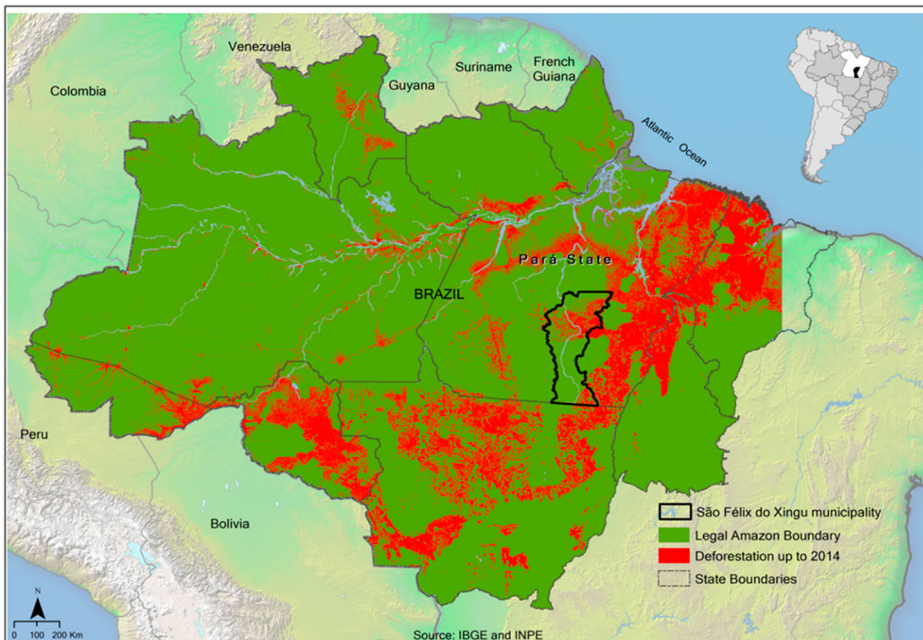


Figure 1. Municipality of São Félix do Xingu within Brazil, showing deforestation.



Brazil nut collectors. Construction of the PA-279 highway to São Félix began in 1976 and finally reached the municipal seat on the Xingu River in the early 1980s. Large ranchers came to São Félix predominantly from the Centre-West and southern Brazil, while many small farmers migrated from the land-poor Northeast, passing through other Amazonian frontiers before reaching the ‘end of the road’ in São Félix. By the time the road was completed, however, indigenous peoples, land speculators, mining companies and large ranchers had already claimed most of the land in the municipality (Schmink and Wood 1992). The actions of government agencies and private investors ‘closed’ the frontier in São Félix to small-farmer migrants, at least on paper (Schmink and Wood 1992, 2012), yet conflicts between large ranchers and small farmers would persist over the coming three decades as methods for illegally appropriating public lands became increasingly sophisticated (Miranda et al. 2016, 125). As the region’s economy gradually consolidated around logging, ranching and mining initiatives oriented to growing global market demand, local elites were increasingly linked to higher levels of political power dominated by corporate extractive and agribusiness interests, while smallholders continued to be marginalised, triggering the evolution of their own organising strategies over time (Pereira 2015) (Figure 2).

## 2.2. *New frontiers emerge in the 1990s*

In reality, the São Félix frontier was far from closed; rather, the struggle to claim public lands shifted westward. A ‘new’ spontaneous frontier emerged far from the gaze of the federal government, propelled by diverse coalitions of local actors (loggers, ranchers, miners, merchants, farmers, officials), with links to powerful Brazilian agricultural and political interests.

Deforestation in São Félix expanded rapidly in the 1990s. Until 1992, forest clearing had taken place outside the protected areas and mountainous zones, close to the main road and far from the villages, but a ‘spread effect’ from 1992 to 1999 led to occupation of previously deforested areas and along unofficial roads to the west of the town of São



Figure 2. Migrants with their belongings perched atop a flatbed truck near a ferry crossing in southern Pará, 1976. Photo credit: Charles H. Wood.

Félix, with rates of expansion almost doubling in the second half of the decade (Brandão and Souza 2006, 183; Mertens et al. 2002, 286). The territory covered by these unofficial roads provided access to the heart of the forested areas of the Xingu-Iriri interfluvial region, known as the ‘Terra do Meio’ or ‘land in the middle’, creating a penetration ‘hole’ in the eastern boundary of the region, which is otherwise surrounded by protected areas and indigenous lands (Taravella and de Sartre 2012, 646).

In successive and overlapping waves, traditional riverside residents who had lived in the region since the 1970s were joined by miners and loggers (1980s), migrant smallholder colonists (early 1990s), and ranchers and land speculators (early 2000s) who moved into the areas along the new secondary roads in the São Félix interior (Pinto 2005, 50). In the absence of state authority, the rapid expansion of unofficial roads involved complex interactions among loggers, ranchers, local authorities and small farmers, forging cooperative relations even among actors with opposing interests (Pinto 2005, 115–17). Smallholders, for example, increasingly participated in the cattle production chain (cf. Pocard-Chapuis et al. 2001), and often relied on large ranchers to provide infrastructure and market access, even as in other moments they might be forced to defend their land claims against expropriation by the ranchers.

Cattle ranching in São Félix began a dramatic expansion during this period, as the herd grew during the 1990s and 2000s to become the largest of any municipality in Brazil (IBGE 2013). Many large landowners who settled in São Félix were able to stay and improve the land, and some became successful in the local and regional economic and political power structure. A large rancher who was active in the occupation of the Terra do Meio was elected to the mayorship (*prefeitura*) of São Félix in 1997, inaugurating the so-called ‘prefeitura of the ranchers’ (Taravella and de Sartre 2012). Illegal appropriation of public land, deforestation and expansion of cattle ranching went hand in hand, driven by those at the ‘top of the landgrab chain’ – politicians, professionals and ranchers, whose relationships with government officials facilitated their land claims (Pinto 2005, 105). São Félix was home to 30 of the 100 largest dubious land claims in Pará during this period, involving only three large owners (Pinto 2005, 106–07). Recent arrests of ringleaders of these landgrab gangs on the western edge of the Terra do Meio revealed the complexity of their strategies to organise financiers, illegal land-buyers, contractors, surveyors and money-launderers and to perpetrate illegal deforestation and land appropriations worth billions of dollars and covering tens of thousands of hectares (Tinoco 2016b). Meanwhile, land access for small producers remained contentious as state and federal authorities failed to regularise smallholder tenure in the municipality.

### 2.3. *Socio-environmentalism and neoliberal developmentalism, 1990s to mid-2000s*

Contestation of the military’s Amazonian development programmes erupted with the country’s democratic opening at the end of the 1980s, which permitted the flourishing of previously prohibited forms of social mobilisation (Schmink and Wood 1992). Local rural workers’ unions, supported by the Pastoral Land Commission (CPT), became important mobilising organisations throughout Amazonia, offering both resistance to and accommodation of dominant political interests (Becker 2004; Welch and Sauer 2015). The rubber tappers’ movement led by Chico Mendes in Acre in alliance with national and international human rights and environmental groups spawned the rise of ‘socio-environmentalism’ in Brazil, seeking to balance human and environmental interests (Keck 1995; Becker 2004). Democratisation and the passing of a progressive constitution in 1988, which decentralised much policymaking to state and local governments, interacted with growing social



and environmental critiques and international pressures to begin a shift from policies favouring deforestation to an emphasis on sustainable development, environmental protections for the Amazon forest, and the territorial rights of traditional peoples. Although the balance of power continued to favour wealthy and politically well-connected interests, native Amazonian peoples began to have a stronger political voice about their future (Schmink and Wood 1992, 126; Becker 2004, 27–29).

Decentralisation also gave more latitude for local agency on the frontier. Dagnino (2007) refers to the ‘perverse confluence’ of neoliberal policies with increased democratic participation. Alongside socio-environmental alliances promoting local participation in environmental policymaking, market-influenced neoliberal environmental policies supported by scientists and technocrats began to reframe previously ‘unproductive’ forests as biophysical assets, and to promote newly recognised environmental goods such as carbon and biodiversity as marketable commodities (Castree 2010, 14; Fairhead, Leach, and Scoones 2012, 241). As the frontier in São Félix matured, Castro, Monteiro, and Castro (2004, 22–23, 27) found that even large ranchers were beginning to recognise the ecological limits to extensive ranching, and some began shifting to more intensive management practices such as pasture rotation.

From late 1990s onwards, however, the ‘techno-industrial vector’ re-emerged to emphasise infrastructure (highways and hydroelectric dams) through successive development programmes (Avanço Brasil and the Programme for the Acceleration of Growth – PAC) aimed at supporting large-scale productive enterprises (Becker 2004, 27–29). Under President Luiz Inácio ‘Lula’ da Silva, Brazil grew into a global economic power through infrastructure construction and corporate export agriculture, and also, somewhat contradictorily, a leader in environmental policies, with increasingly intertwined environmental and capitalist interests. A complex coalition of forces at different levels of government, responding to both grassroots and international pressures, and now involving new actors such as international NGOs tightly linked to capitalist market networks, sought to reconfigure the geography of agribusiness expansion through a combination of protected areas creation and market-oriented policy measures for sustainable commodity production and reducing carbon emissions from deforestation (REDD) (Thaler 2017).

#### **2.4. *The ‘Amazon Swerve’ and its consequences, mid-2000s to present***

In the mid-2000s, the political forces building across the environmentalist coalition manifested in the ‘Amazon Swerve’ (Oliveira and Hecht 2016, 268) – an abrupt policy shift by the federal government from promoting expansion of agriculture and cattle ranching to prohibiting deforestation, and seizing control of large areas for conservation. This shift combined the creation of protected areas with promotion of agricultural intensification, tenure regularisation and enforcement of the Brazilian Forest Code (which requires private properties to maintain permanent protection areas along waterways and on slopes and a ‘legal reserve’ of natural vegetation, which in the Amazon was set to 80 percent of the property area) in an attempt to engineer a shift in frontier dynamics from extractive expansion to ‘green’ development (Thaler 2017).

The Amazon Swerve thus comprised a second government takeover of land in Amazonia, this time in the form of a ‘green grab’ (Fairhead, Leach, and Scoones 2012). The new Amazonian policy framework was codified in the federal government’s Action Plan for Prevention and Control of Deforestation in the Legal Amazon Region, or PPCDAm, launched in 2004. Protected areas created under PPCDAm included federal *Unidades de Conservação* (Conservation Units – UCs) covering over 25 million hectares, and 10 million hectares

designated as Indigenous Lands. The Amazonian states also set aside protected areas, totaling 25 million hectares in UCs (MMA 2015). In the Terra do Meio, local socio-environmental advocates allied with environmental activist groups to successfully pressure federal and state authorities to create a mosaic of conservation units and indigenous territories covering approximately 30 million hectares, one of the largest ecological corridors in the world (Velásquez, Boas, and Schwartzman 2006; Schwartzman et al. 2010). As shown in Figure 3, the 280,000 km<sup>2</sup> area, gazetted between 2003 and 2008, included lands belonging to 25 indigenous peoples and 15 riverside-dwelling communities, as well as the Triunfo do Xingu APA (Environmental Protection Area) across the Xingu river from the town of São Félix (Silva and Tostes 2012, 13; Schwartzman et al. 2013, 8–9; Dias, Aleixo, and Miranda 2016, 54, 73).

São Félix locals were not part of the socio-environmental alliance that pushed for the Terra do Meio protected areas, and many did not support this federal intervention (Dias, Aleixo, and Miranda 2016, 54–55). According to one rancher, federal police removed over 200,000 head of cattle found in newly protected areas. By 2012, 73 percent of São Félix territory was located in protected areas, leaving 22,582 km<sup>2</sup> of non-protected forest areas (Silva and Tostes 2012, 13). Large ranchers in particular, well organised in their associations and well connected with powerful national ‘ruralist’ legislators, led the opposition to protected area creation, depicting themselves as heroes bringing local development in the absence of state investments. They derided the imposition of environmental measures whose impetus they attributed to contrary national and international interests (Taravella and de Sartre 2012), using a discourse similar to that of large landholders in other parts of the Brazilian Amazon (Adams 2015; Campbell 2015; Hoelle 2015).

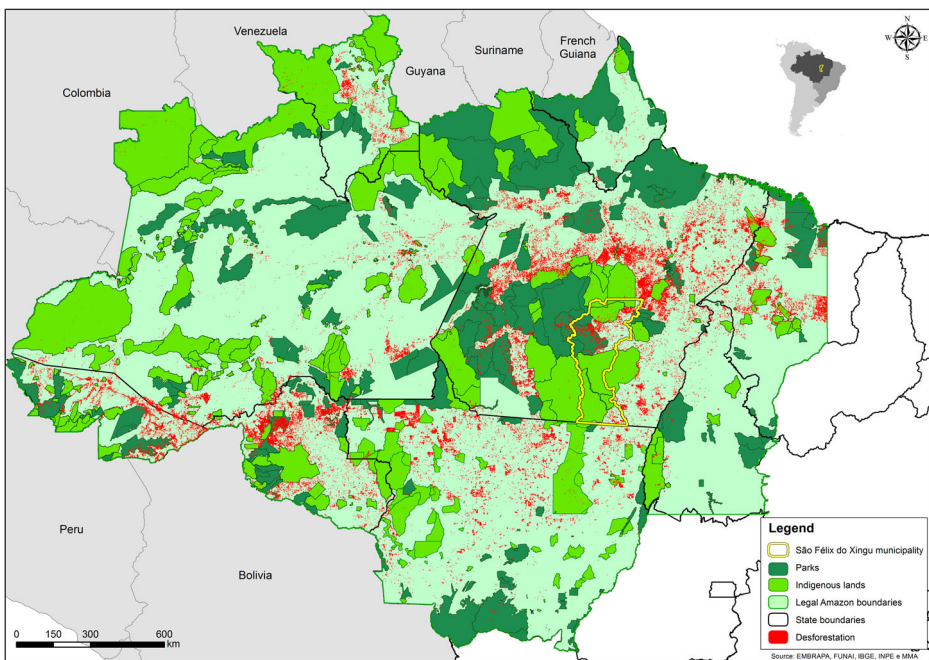


Figure 3. The municipality of São Félix do Xingu within the Legal Amazon region of Brazil, with protected areas and deforestation.

Actors supporting socio-environmentalism in São Félix also became more organised in this period, with the 2004 founding of the Association for the Development of Family Agriculture of the Upper Xingu (ADAFAX) by a local agricultural cooperative and the Pastoral Land Commission (CPT) of the Catholic Church. Tenure issues continued to trouble landowners of all sizes, however. In 2006, state prosecutors closed the registrar of deeds (*cartório*) for issuing fraudulent titles. The *Terra Legal* (Legal Land) tenure regularisation programme launched by the federal government in 2009 managed to title just 26 rural properties in São Félix in the subsequent five years (MDA 2015).

The environmentalist coalition intensified and rescaled its political-economic programme in 2008, leading to the creation of the federal ‘List of Priority Municipalities for Deforestation Control’, known as the ‘Black List’. By 2014, 41 Amazonian municipalities had been included in the list, through which the federal government imposed a series of new disciplinary controls, in particular prohibition and intense monitoring of deforestation, which was linked to a ban on rural credit from official banks, effectively paralysing production on many properties. As one NGO respondent affirmed: ‘The environmental question came from the top down, and the full weight of it fell on the producer’. A requirement for removal from the Black List was completion of Rural Environmental Registration (CAR), a tool for tracking illegal deforestation and facilitating Forest Code compliance, for properties comprising at least 80 percent of the municipality’s private property space. Simultaneously, market-oriented measures targeted the beef supply chain, as the Federal Public Ministry, backed by environmental groups such as Greenpeace, created a ‘Beef Embargo’ in 2009. Actors in the production chain (especially meatpackers) were held legally responsible if they acquired beef from illegally deforested properties. Meatpacking plants began requiring CAR from producers, and CAR registration increased dramatically as ranchers sought to comply with legal requirements to access credit and market their cattle (Gibbs et al. 2016; Moreira 2016).

São Félix felt the full brunt of these new policy measures. According to a packing plant manager, these measures led to a decline of over 30 percent in cattle slaughtered in São Félix beginning in 2008, as well as an increase in the price of beef as supply diminished. The ban was not completely effective, though, as ‘cattle laundering’ by renting pastures elsewhere or moving cattle between properties was not prohibited, and non-regulated slaughterhouses still operated in the region (Gibbs et al. 2016; Tinoco 2016a; Maisonnave 2017). Still, many ranchers had stopped burning and were investing in pasture recuperation. Among ranchers interviewed in 2008 by Claudino (2011, 116), about 15 percent had restored their pastures, across all kinds of ranchers but especially among the largest properties and more capitalised ranchers. Ranchers of all types were investing in pasture management, through restoration, division and rotation of areas, and seasonal stocking adjustments (Claudino 2011, 113–14). Annual deforestation declined in São Félix from over 1400 km<sup>2</sup> in 2005 to only 152 km<sup>2</sup> in 2014. A state official who analysed data on deforestation in 2014 from the government’s satellite tracking programme called PRODES confirmed that since the 2008–2009 governance shock, deforestation had occurred on only 10 percent of the rural properties in São Félix. These data suggest that the ‘greening’ of ranches in São Félix was underway, but at the cost of at least a temporary local economic slump.

Most Amazonian municipal governments were ill-prepared to address the challenges of these new policies, which required them not only to control deforestation (previously actively supported by government policies), but also to implement new policy instruments such as CAR, and to support the development of sustainable production alternatives for producers no longer allowed to clear mature forest. Some municipalities were

able to secure assistance from NGOs, the federal government and other organisations, and São Félix, as the ‘champion of deforestation’ in the Amazon, became a favoured site for environmentalist projects (Thaler 2017). Projects were launched by the federal Environment Ministry (with FAO assistance), as well as by The Nature Conservancy and Brazilian NGOs such as the Brazilian International Institute of Education (IEB), the Institute for Management and Certification of Forests and Agriculture (IMAFLOA) and ADAFAX (Sousa et al. 2016). This international coalition supported efforts by the São Félix local government to enact a ‘Pact against Deforestation’, signed in 2011 by government agencies and other stakeholder groups, which spelled out the obligations of all parties in the effort to transform São Félix into a region of deforestation-free sustainable development. With support from the state government, The Nature Conservancy and other partners, the local government began a successful campaign to register municipal properties with CAR and to reduce deforestation, while NGOs developed pilot programmes to promote sustainable development alternatives for larger cattle ranchers and smallholder producers in the region, such as intensified ranching and cacao agroforestry (Silva and Tostes 2012, 16–19; Gomes et al. 2015; Sousa et al. 2016; Garcia et al. 2017). After 2009, Brazil’s National School Meals Program (PNAE) began sourcing 30 percent of its purchasing from family agriculture, helping build extra markets in São Félix for smallholder food crops such as fruit pulps that can be produced in agroforestry systems without deforestation (Figure 4).

Many migrants in São Félix had come from previous frontiers, where they had experienced repeated land conflicts and declining agricultural productivity due to land degradation, which prepared them to accept and respond to the new policies prohibiting land clearing as one more measure to try to consolidate their claims to land (Campbell 2015). Their hope was that government resources and policies would support their transition to more sustainable practices and a more stable community, and that this ‘greening’ of their land-use practices would allow continued agricultural development in the region.



Figure 4. Official meeting to commemorate reaching 80 percent of the municipality in Rural Environmental Registration (CAR), with the participation of rural producers, and local, state and federal government authorities. São Félix do Xingu, 2011. Photo credit: Carlos Valério A. Gomes.



This promise of change was undermined, however, by the lack of fulfilment of the key obligations of the federal and state governments under the municipal pact. Federal agencies charged with managing the newly created conservation areas were absent from São Félix (Dias, Aleixo, and Miranda 2016, 52), land regularisation under the Terra Legal programme failed to advance, and the number of agricultural extension agents was too small for the approximately 10,000 rural smallholders in the municipality. One after another, our respondents pointed out the lack of action in road and transport improvement, land regularisation, credit and technical assistance for improved production practices, and access to energy throughout the rural areas. According to a government employee, land settlements by the National Institute for Colonisation and Agrarian Reform (INCRA) were on hold, awaiting the resolution of long-standing judicial disputes and political manoeuvrings; three of INCRA's vehicles sat broken down in the garage. The state agricultural secretariat (SAGRI) had no concrete projects underway in São Félix, and technicians at the state extension agency had no funds to go to the field. One colonist reported that there were only three municipal tractors for use by smallholders in São Félix. Only a few small NGO pilot programmes were working to support the transition of small producers to sustainable livelihood systems.

In the absence of these resources, only the more capitalised producers were able to invest in their properties, taking advantage of the new policy moment to further their claims to land and burnish their green credentials. In effect, registration in CAR helped to 'normalise' regional history, obscuring past frauds, land speculation and deforestation (Campbell 2015, 193). Ironically, one rancher commented that the Public Ministry, previously the ranchers' greatest enemy due to its enforcement of credit bans and registration requirements, was now one of their 'great allies' in the effort to pressure the government to live up to its promises. In 2016, Walmart and its slaughterhouse supplier Marfrig launched the 'Xingu Herd' line of 'deforestation-free, climate-smart' beef based on The Nature Conservancy's sustainable beef project, which was carried out on 13 pilot properties of medium and large ranchers in São Félix starting in 2013 (Moore Foundation 2016; Garcia et al. 2017). The net product of these various environmental governance strategies was an apparently legal and sustainable rural economy dominated by elites whose past and current practices included violence, fraud and ecological destruction.

Deforestation rates crept upward in Amazonia again starting in 2012, and Brazil's growing economic and political crises in 2014–2017 threatened to weaken the government's will and resources to enforce measures supporting more sustainable production (Nepstad et al. 2014; Poirier 2017). The Temer administration cut the budget for the Environment Ministry in half and eviscerated the country's environmental licensing standards, rolled back protected areas created under the Lula government, undermined indigenous territorial rights and reduced protections for Amazonian forests. Provisions in the New Forest Code passed in 2012 essentially provided an amnesty to many of those who had deforested illegally, allowing ranchers and land grabbers to clean up their image by complying with new environmental measures (Castro, Monteiro, and Castro 2004, 61; Moreira 2016). Despite positive results, the pilot projects led by NGOs to promote sustainable land-use practices had limited impact due to the inability to scale up to the larger population of regional producers. The 'agri-environmentalism' adopted by Amazonian ranchers in response to the 'conservation opportunities' of global pressures and heightened state regulation (Brannstrom 2011, 544) may now be on the wane thanks to resurgent frontier expansion.



### 3. Lived experiences of the green frontier

How did people on the ground in São Félix interpret and respond to these historical changes? To what extent had people internalised environmental concerns as a result of new strategies to 'green' the frontier? In order to address these questions, fieldwork during the 2014 revisit explored people's lived experiences and narratives regarding changes in São Félix and in land uses and practices, as well as their perspectives on the future of the municipality. The results shed light on the interplay between the shifting political ecology at macro- and micro-levels of analysis, how policies shaped ongoing, historically sedimented conflicts, and how local actors interpreted and enacted policies while modifying their own view of development and environment as they continually adapted to changing circumstances. The results also highlight the importance of a political ecology approach that takes into account the outcomes of policy negotiations at different levels and in different periods, combined with analysis of the dynamics of local agency, to understand the production and tensions of the 'green' Amazonian frontier. The following sections analyse data from the 2014 revisit in relation to three themes: views of development, changing productive practices and expectations for the future.

#### 3.1. Views of development in São Félix

Research in the neighbouring region of Marabá found that people subscribed to linear, evolutionary concepts of development, and also to the contrasting idea of development as a discontinuous process, with unequal or unfair outcomes (Thypin-Bermeo and Godfrey 2012). How did the residents of São Félix see the process of development in a frontier characterised by dramatic shifts over the past half-century? We asked respondents to agree or disagree with six statements that we had heard people say in São Félix or in other Amazonian sites, and which captured a dimension of the development concept. Sixty-one percent of interviewees agreed with the statement that 'things are always getting better here', endorsing a linear development concept of continual progress. Interviews with São Félix residents carried out by Saidler (2015, 409–10) also revealed a continuing anticipation of a 'new São Félix' bringing progress in the future. Ranchers, however, were the group most likely to disagree with this statement in our study: only one-third agreed. This finding suggests that ranchers' endorsement of the new sustainability measures still was tempered by opposition to recent policy shocks.

The statement that elicited the greatest agreement among respondents (86.2 percent) was: 'People who don't advance are those who aren't trying'. This result reveals a strong shared belief that people were responsible for their own fate, and that they lived in a place where it was possible to get ahead. Surprisingly, respondents were less likely to agree with statements that were critical of frontier development as benefitting only the rich and powerful ('Life is getting harder for the poor' (31 percent agreement) and 'The rich get richer, and the small get smaller' (24 percent agreement), reinforcing the widely shared cultural notion that people could succeed if they worked hard. In summary, there was strong agreement with social values favouring work as the best way for people to get ahead, and a positive sense of the possibility for even poor people to succeed in the continuing progress of development in São Félix.

Most people readily reported improvements in life in São Félix, but their discourse focused more on the evolution of the economy – such as the expansion of cattle and other economic booms – than on the governance shocks or benefits of recent greening. Respondents cited shifting commodity cycles starting with the boom for rubber and

Brazil nuts, small-scale mining and animal skins, followed by logging and extraction of *jaborandi* leaves (used in glaucoma treatment). With long-standing forest extractivism by local communities largely a thing of the past, most people associated ‘extractive’ activities with logging and mining instead of the traditional rubber-tapping or collection of Brazil nuts of past decades. Since the 2000s, the economy had been dominated by ranching expansion, which was now constrained by environmentalist regulations, so people voiced hope for future new economic cycles based on industrial mining, tourism or even soy production.

Respondents also mentioned the importance of governance initiatives, including actions by government, NGOs and market actors. Seven respondents pointed to the embargo on credit and the prohibition of deforestation as an important change, and four people cited the arrival of government agencies and NGOs, with their training and support programmes, as an important change linked to the embargo. Three mentioned the expansion of cocoa-based agroforestry systems to promote restoration of degraded pastures and food security alternatives for small landholders (cf. Gomes et al. 2015) and the adoption of improved cattle practices among larger ranchers (Garcia et al. 2017), while two mentioned the creation of protected areas. One person noted that the creation of the Terra do Meio reserves put the brakes on the large ranches, which (according to this respondent) set the town back 20 years.

As Campbell (2015) found among colonists in western Pará, people in São Félix still saw themselves as *before* history, preparing their region for the arrival of effective government and a promising future. Many respondents also acknowledged that, despite progress, much still needed to be improved in road access, energy and services. Several pointed out the trade-offs and negative as well as positive changes in the last decade, especially the lack of follow-through by government in public goods provision. Local organisations and NGOs, especially those most oriented to small producer communities, were seen as weak. In the absence of broader government policies, NGO pilot programmes were not sufficient to guarantee continuity of a green development transition, although filling important gaps in government action and successfully gaining the trust of many São Félix residents. Some local authorities showed a certain opposition to the work of the NGOs in São Félix, saying that they were ‘creating problems’ with their programmes because the local government would be unable to continue them after the NGOs’ departure.

### **3.2. *Changing productive practices: learning from NGOs and from experience***

To explore how environmental concerns were incorporated into practice, two questions in our questionnaire asked people directly about changes in productive practices. Respondents who were producers were asked if they had changed their agricultural or ranching practices in recent years, and in what ways. All respondents were asked to reflect in general on why they thought some producers in São Félix were changing their production practices. These questions sought to understand the diverse factors – socio-economic and cultural – that might influence people’s changes in behaviour related to sustainable production alternatives.

Only two of the 19 producers interviewed had not changed their practices, and one of these spoke of how he was planning to change his pasture management. Improved pasture management was mentioned six times, and other producers affirmed that they had stopped deforesting, recuperated degraded areas, ploughed and fertilised, diversified production (through agroforestry), protected permanent protection areas, managed timber extraction, certified cocoa production, or followed agro-ecological principles to produce without burning or to diversify production.

About three-quarters (16) of the producers referred to the government prohibition on burning and fear of government fines for illegal forest clearing as the reasons for the changes, but a similar number (14) explained that the changes were made in order to diversify and improve economic returns in the face of falling productivity in degraded areas (cf. Miranda et al. 2016, 141–45). These responses suggest that government enforcement combined with the lived experience of frontier producers to stimulate changes in production practices, along with interventions by NGO environmental support programmes. Gibbs et al. (2016) found that for ranchers, market incentives (the beef embargo) stimulated compliance with land registration requirements, although these incentives were not mentioned explicitly as a reason for changing production practices by those we interviewed.

The various factors (deforestation prohibition; economic considerations; environmental education and concerns) intertwined to convince producers to respond in different ways and ‘learn from our mistakes’ (as one respondent put it) as part of the frontier adaptation process.

Migrant colonists who had passed through recent frontier regions nearby had lasted only 10 to 15 years before being forced by declining productivity to move on to the next frontier in São Félix, giving them first-hand experience with the limits of cattle ranching, especially for smallholders. These results echo findings by other researchers working in São Félix (Castro, Monteiro, and Castro 2004; Claudino 2011) and elsewhere in southern Pará on the growing use of improved breeds of cattle, improved pastures for large- and medium-sized ranches, and better pasture management (Pacheco and Pocard-Chapuis 2012, 14). The governance shocks of the 2000s reinforced previous rancher responses based on their lived frontier experience, presenting an opportunity to limit land degradation while potentially legitimising and securing land claims through the ‘greening’ of production.

### 3.3. *The future of São Félix*

Our revisit indicated that economic factors interacted with environmental governance shocks and the lived experiences of the local population in the late 2000s to trigger shifts in strategies of land uses and practices. To what extent might these changing views and practices influence residents’ thinking about the future of São Félix?

Nearly 80 percent of those interviewed (22 of 28) intended to stay in São Félix in the future and two more were undecided, while only three said they planned to leave. This proportion intending to stay was even higher than the proportions of people interviewed in representative samples in the town of São Félix in 1978 (60.8 percent) and 1984 (75 percent), suggesting a persistent and growing trend over time of people who, once settled, intended to make their future in São Félix (Schmink and Wood 1992, 318). Whereas 95 percent (21 of 22) of respondents with NGO ties intended to stay, only two of six (33 percent) who did not have ties to NGOs were planning to stay in São Félix. This finding underscores the weakness of government interventions to scale up support for a green transition for small producers in São Félix by expanding services beyond the relatively small universe of smallholders who could participate in NGO programmes. Without this support, their future prospects were limited.

Over the previous decade, some small farmers had developed local ‘socio-technical networks’ in São Félix and participated in technical assistance and organisational programmes provided by the local NGO coalition supporting the shift to diversified production systems and agro-ecological principles (Miranda et al. 2016, 141–45; Sousa et al. 2016, 213). Coupled with a growing urban population in the municipal seat and government

programmes such as PNAE, these networks constituted a potential for the growth of diversified smallholder systems based on agroforestry, dairying, and fruit and vegetable production. Without broader governmental support, however, the dominant political and economic forces continued to work against this alternative model of development, favouring continued focus on credit and external outputs for smallholder monocrop agriculture and cattle raising (cf. Miranda et al. 2016, 145).

More capitalised ranchers had the resources to take full advantage of their new status as 'green' producers. Unlike the loggers before them, who had exhausted the easily accessible high-value mahogany until export bans and federal enforcement forced them to move elsewhere, São Félix ranchers interviewed in two studies in the 2000s said that they had come to stay, and were using strategies to stay on and to consolidate their holdings (Castro, Monteiro, and Castro 2004, 40; Claudino 2011, 84–85). One government employee interviewed in 2014 commented optimistically that even some ranchers with a criminal 'past' might be learning human values, feeling that it was time to repay their debt to the municipality. He emphasised the change in mentality in São Félix, due to awareness of the laws, which he said was evident in the changing discourse of ranchers towards 'environmentally responsible' production.

#### 4. Discussion and conclusions

The small number of carefully selected people our team interviewed in São Félix in 2014 were knowledgeable about environmental governance changes and regulations, and most were engaged directly with pilot programmes promoting sustainable agricultural practices. Most of these respondents had largely internalised the idea of no further deforestation as the 'new normal' in São Félix. They recognised the changes underway in their own thinking, practices and identities as they sought a transition from a past of rapid deforestation and land grabbing, cattle expansion and violent conflicts to a more civilised and tranquil present that allowed them to hope for a prosperous future based on the region's abundant natural resources. The (re-)closing of the frontier and greater presence of government agencies, including expectations of a new university campus, promised that everyone who lived there, if they worked hard, could do well. The green market logic of the environmental governance shocks articulated positively with these local visions and priorities (Gardner 2012).

Many of the settlers in São Félix arrived during earlier periods when government policies supported new roads and expanded occupation of Amazonian lands, providing agricultural credit and encouraging forest conversion for pasture. They came seeking land and resources on the frontier. Successive migratory waves of people from exhausted nearby frontier areas of southern Pará moved westward seeking minerals, timber, and land for speculation and for production, constructing, maintaining and recovering thousands of kilometres of informal roads that allowed them to set up logging camps and small villages that today have become rural towns surrounded by ranches and farms. Government policies offered little support to small producers in São Félix, enabling the concentration of larger landholdings in some areas and creating a complex matrix of land uses and of relationships among diverse and sometimes conflicting actors who nonetheless often cooperated in order to survive in remote regions.

When the green governance shocks of 2004–2011 reversed previous government policy and prohibited new deforestation in São Félix, they put the brakes on the expansion of the 'new frontier' in the Terra do Meio and forced producers, many of whom were already experiencing declining production on their soils, to concentrate on

producing on already-cleared areas, shifting to restoration and management of pastures and diversification with cocoa and other agroforestry products. Many migrants from previous southern Pará frontiers had already experienced environmental declines after land clearing and were resigned to changing their practices to try to stay in São Félix, a place where it still seemed possible for hard work to lead to a better life. New regulatory institutions and new local government support and educational pilot programmes combined with the lived experiences of these repeat migrants so that, over time, many of them began to recognise and appreciate the broader environmental benefits of more sustainable production practices and the broader social benefits of greater government presence.

Greening of the São Félix frontier was not without its contradictions. On one hand, government enforcement of environmental measures stimulated the ‘greening’ of cattle ranching practices in places where large-scale, violent deforestation had been the rule. On the other hand, failure to provide incentives and supports promised by federal and state government agencies (infrastructure improvement; land regularisation; credit; energy; technical assistance) threatened to undermine the shift to a more sustainable production system for smallholders and continue their dispossession in favour of large ranchers (Brannstrom 2011, 540; Gebara 2014).

The programmes undertaken by NGO and government partners appear to have had an important impact on the thinking and practices of those they have reached. Even The Nature Conservancy, initially distrusted by some as an ally of corporate interests, was able to win local support through its projects. The greening of the São Félix frontier entailed some changes in productive practices, especially in a situation of diminishing economic returns due to land degradation. For large producers with sufficient resources, the costs of shifting to new forms of production were manageable and the returns positive, although the government’s failure to regularise the land tenure situation continued to constrain access to credit. Large ranchers could afford to wait out the evolution of ‘green’ policies, or could circumvent restrictions through various loopholes. The costs of ‘best-practice’ inputs were beyond the reach of the majority of small producers, however, who lacked sufficient capital to invest in new practices. Only a tiny proportion of small farmers had received support through pilot programmes. In this respect, the emphasis on ‘techno-managerial’ approaches that favoured ‘inclusive’ processes but ignored vast power differences between large-scale producers and smallholders had undermined the potential contributions of localised social movements and communities with a broader view of development (Baletti 2014) to compete with the dominant agro-industrial paradigm.

Producers, especially ranchers, saw land tenure regularisation as the most urgent priority for government resolution. Most lands in São Félix were occupied illegally, and the state has been notoriously slow to resolve these issues. While titling for smallholders under Terra Legal had stalled, large producers had in some cases managed to exert political influence to link environmental regularisation to land tenure resolution on their properties (Campbell 2015; Moreira 2016).

Unfortunately, the virtuous connections between environmental governance, lived experiences, and the conditions for a shift to more sustainable production systems and better quality of life were not available to the great majority of the rural producers in São Félix and elsewhere in rural Amazonia. At the same time, the stance of people in São Félix was anything but passive. Fiercely determined, convinced of the value of work and proud of their independence on the frontier, they remained hopeful for their future prospects among the abundant resources of the municipality. Most had survived prior hardships and economic downturns on this and previous frontiers, and they looked forward



to the next cycle of prosperity based on mining, cocoa, tourism, or even soy cultivation that was pushing into the neighbouring southern frontier region. They also placed great hope in access to higher education for the next generation, guaranteeing a future based on home-grown professionals with a higher quality of life. After earlier cycles of extractivism and agribusiness expansion, the ‘end of deforestation’ of the past decade was anything but the end of history for residents of São Félix.

Nor was this the end of the history of the Amazonian frontier. This recent ‘green’ trajectory is continuously contested through ongoing political battles. Recently, Brazil’s powerful agrarian lobby has successfully rolled back Forest Code provisions and protected area designations while facilitating agribusiness expansion. Deforestation rates rebounded in the region after 2012, buoyed by a ‘more positive’ political environment in the Brazilian capital for large landholders (Branford and Torres 2017). Millions of hectares previously in Amazonian protected areas were downgraded, downsized, degazetted and reclassified (Bernard, Penna, and Araújo 2014), and environmental violations inside protected areas have gone mostly unpunished (Barreto et al. 2009). Under the Temer administration, conditions for the greening of the Amazon have worsened. Agribusiness leader and former Mato Grosso state governor Blairo Maggi was named Minister of Agriculture in the new government, and the Agrarian Development Ministry, which supports family agriculture, was initially abolished before being reinstated as a lower level secretariat following public outcry. Current debates in the Brazilian Congress, dominated by the rural landowners’ lobby, focus on revising the terms and processes governing the demarcation of indigenous lands, opening protected areas to mining, and facilitating the private appropriation of public land (Ferreira et al. 2014; Poirier 2017). Yet another regional transformation may be underway, as the environmental governance of the past decade is being eroded in favour of a return to a system ‘rigged for theft and destruction’ (Campbell 2015, 198).

As Amazon development initiatives devote growing investments to mining, hydro-power and highway construction, Brazil’s recently established role as a global environmental leader is being called into question (Fearnside 2002, 2014; Ferreira et al. 2014; Loyola 2014). Because of rising deforestation rates, the Norwegian government has announced that it will reduce its donations to Brazil’s Amazon Fund by as much as 70 percent. Frontline battles are now being waged in the halls of Congress in Brasília, and on the ground at the Amazon frontier, between shifting alliances including rural landowners, government bureaucrats, corporate executives, environmentalists, indigenous peoples and smallholder colonists. The long-term study of the municipality of São Félix shows the intimate links between government policy debates and conflicts on the frontiers of Amazonia, where the contemporary greening of the frontier, with its particular set of environmental and social benefits and contradictions, is continuously contested through competing visions for an uncertain future.

### **Acknowledgements**

The authors wish to thank the São Félix do Xingu team of The Nature Conservancy for their invaluable logistical support and collaboration, as well as the anonymous reviewers for helpful comments on previous drafts.

### **Disclosure statement**

No potential conflict of interest was reported by the authors.

## Funding

This work was supported by the Gordon and Betty Moore Foundation under grant number 4111. Open access publication of this article was funded by the University of Florida Open Access Publishing Fund.

## References

- Adams, R.T. 2015. An emerging alliance of ranchers and farmers in the Brazilian Amazon. *Tipití* 13, no. 1: 63–79.
- Arima, E., P. Barreto, E. Araújo, and B. Soares-Filho. 2014. Public policies can reduce tropical deforestation: Lessons and challenges from Brazil. *Land Use Policy* 41: 465–73.
- Assunção, J., C. Gandour, and R. Rocha. 2012. *Deforestation slowdown in the legal Amazon: Prices or policies?* Rio de Janeiro: CPI Working Paper. <http://climatepolicyinitiative.org/wp-content/uploads/2012/03/Deforestation-Prices-or-Policies-Working-Paper.pdf> (accessed April 18, 2017).
- Baletti, B. 2014. Saving the Amazon? Sustainable soy and the new extractivism. *Environment and Planning A* 46, no. 1: 5–25.
- Barreto, P., M. Mesquita, E. Araújo, and B. Brito. 2009. Impunity for environmental violations in protected areas of the Amazon. *IMAZON-State of the Amazon* 13: 1–6.
- Becker, B.K. 2004. *Amazônia: Geopolítica na virada do III milênio* [Amazon: Geopolitics at the turn of the third millennium]. Rio de Janeiro: Garamond.
- Bernard, E.L., A.O. Penna, and E. Araújo. 2014. Downgrading, downsizing, degazettement and reclassification of protected areas in Brazil. *Conservation Biology* 28, no. 4: 939–50.
- Boucher, D., P. Elias, J. Faires, and S. Smith. 2014. *Deforestation success stories: Tropical nations where forest protection and reforestation policies have worked*. Union of Concerned Scientists. [http://www.ucsusa.org/sites/default/files/legacy/assets/documents/global\\_warming/deforestation-success-stories-2014.pdf](http://www.ucsusa.org/sites/default/files/legacy/assets/documents/global_warming/deforestation-success-stories-2014.pdf) (accessed March 10, 2017).
- Brandão, A.O. Jr., and C.M. Souza Jr. 2006. Mapping unofficial roads with Landsat images: A new tool to improve the monitoring of the Brazilian Amazon rainforest. *International Journal of Remote Sensing* 27, no. 1: 177–89.
- Branford, S., and M. Torres. 2017. Amazon land speculators poised to gain control of vast public lands. Mongabay Series: Global Forests, Amazon Infrastructure. <https://news.mongabay.com/2017/03/amazon-land-speculators-poised-to-gain-control-of-vast-public-lands/> (accessed March 2, 2017).
- Brannstrom, C. 2011. A Q-method analysis of environmental governance discourses in Brazil's north-eastern soy frontier. *The Professional Geographer* 63, no. 4: 531–49.
- Browder, J.O., and B.J. Godfrey. 1997. *Rainforest cities: Urbanization, development, and globalization of the Brazilian Amazon*. New York: Columbia University Press.
- Browder, J.O., M.A. Pedlowski, R. Walker, R.H. Wynne, P.M. Summers, A. Abad, N. Becerra-Cordoba, and J. Mil-Homens. 2008. Revisiting theories of frontier expansion in the Brazilian Amazon: A survey of the colonist farming population in Rondônia's post-frontier, 1992–2002. *World Development* 36, no. 8: 1469–92.
- Bunker, S. G. 1985. *Under developing the Amazon*. Champaign, IL: University of Illinois Press.
- Campbell, J.M. 2015. *Conjuring property: Speculation and environmental futures in the Brazilian Amazon*. Seattle: University of Washington Press.
- Castree, N. 2010. Neoliberalism and the biophysical environment: A synthesis and evaluation of the research. *Environment and Society: Advances in Research* 1: 5–45.
- Castro, E.R., R. Monteiro, and C.P. Castro. 2004. Atores sociais na fronteira mais avançada do Pará: São Félix do Xingu [Social actors in the most advanced frontier of Pará: São Félix do Xingu]. *Núcleo de Altos Estudos Amazônicos-UFPA, Paper do NAEA 180*. (<http://www.naea.ufpa.br/naea/novosite/paper/332> (accessed April 13, 2016)).
- Claudino, L.S.D. 2011. *Ocupação dos espaços, gestão e degradação das pastagens entre pecuaristas da microrregião de São Félix do Xingu – PA* [Occupation of spaces, management and degradation of pastures among ranchers in the micro-region of São Félix do Xingu – PA]. *Masters thesis*, Federal University of Pará-UFPA.
- Cleary, D. 1993. After the frontier: Problems with political economy in the modern Brazilian amazon. *Journal of Latin American Studies* 25, no. 2: 331–49.
- Dagnino, E. 2007. Citizenship: A perverse confluence. *Development in Practice* 17, no. 4/5: 549–56.

- Dias, A., N. Aleixo, and K. Miranda. 2016. Mapeamento socio-institucional do município de São Félix do Xingu [Socio-institutional mapping of São Félix do Xingu]. In *Governança Socioambiental na Amazônia: Agricultura Familiar e os Desafios para a Sustentabilidade em São Félix do Xingu – Pará* [Socio-environmental Governance in Amazonia: Family Agriculture and the Challenges for Sustainability in São Félix do Xingu], eds. R.P. Souza, R.C. da Silva, K. Miranda, and M.A. Neto, 81–121. Belém: Instituto Internacional de Educação do Brasil.
- Fairhead, J., M. Leach, and I. Scoones. 2012. Green grabbing: A new appropriation of nature? *The Journal of Peasant Studies* 39, no. 2: 237–61.
- Fearnside, P.M. 2002. Avanço Brasil: Environmental and social consequences of Brazil's planned infrastructure in Amazonia. *Environmental Management* 30, no. 6: 735–47.
- Fearnside, P.M. 2014. Brazil's Madeira river dams: A setback for environmental policy in Amazonian development. *Water Alternatives* 7, no. 1: 256–69.
- Ferreira, J., L.E.O. Aragão, J. Barlow, P. Barreto, E. Berenguer, M. Bustamante, T.A. Gardner, A.C. Lees, A. Lima, J. Louzada, R. Pardini, L. Parry, C.A. Peres, P.S. Pompeu, M. Tabarelli, and J. Zuanon. 2014. Brazil's environmental leadership at risk. *Science* 346, no. 6210: 706–7.
- Foweraker, J. 1981. *The struggle for land: A political economy of the pioneer frontier in Brazil, 1930 to the present*. London: Cambridge University Press.
- Fukuyama, F. 1989. The end of history? *The National Interest* 16: 3–18.
- Garcia, D., F.S.V.R. Filho, G.M. Mallmann, and F. Fonseca. 2017. Costs, benefits and challenges of sustainable livestock intensification in a major deforestation frontier in the Brazilian Amazon. *Sustainability* 9: 1–17.
- Gardner, B. 2012. Tourism and the politics of the global land grab in Tanzania: Markets, appropriation and recognition. *The Journal of Peasant Studies* 39, no. 2: 377–402.
- Gebara, M.F. 2014. Sustainable landscapes pilot program in São Félix do Xingu, Brazil. In *Redd+ On the ground*, eds. E.O. Sills, S.S. Atmadja, C. de Sassi, A.E. Duchelle, D.E. Kweka, I.A.P. Resosudarmo, and W. Sunderlin, 106–23. Bogor, Indonesia: Center for International Forestry Research.
- Gibbs, H.K., J. Munger, J. L'Roe, P. Barreto, R. Pereira, M. Christie, T. Amaral, and N.F. Walker. 2016. Did ranchers and slaughterhouses respond to zero-deforestation agreements in the Brazilian Amazon? *Conservation Letters* 9, no. 1: 32–42.
- Gomes, C.V.A., E. Garcia, E.S. Alves, M.M. Queiroz, and F.P. Oliveira. 2015. Cocoa agroforestry system as an alternative for degraded pastureland restoration, food security and livelihoods development among smallholders in a Brazilian Amazon agricultural frontier. In *Enhancing food security through forest landscape restoration: Lessons from Burkina Faso, Brazil, Guatemala, Viet Nam, Ghana, Ethiopia and Philippines*, eds. C. Kumar, C. Saint-Laurent, S. Begeladze, and M. Calmon, 42–69. Gland, Switzerland: IUCN.
- Hoelle, J. 2015. *Rainforest cowboys: The rise of ranching and cattle culture in western Amazonia*. Austin, TX: University of Texas Press.
- Ianni, O. 1978. *A luta pela terra* [The struggle for land]. Petrópolis: Vozes.
- IBGE (Instituto Brasileiro de Geografia e Estatística). 2013. *Produção da pecuária municipal* [Municipal cattle production]. <http://biblioteca.ibge.gov.br/index.php/biblioteca-catalogo?view=detalhes&id=784> (accessed June 15, 2015).
- Keck, M. 1995. Social equity and environmental politics in Brazil: Lessons from the rubber tappers of Acre. *Comparative Politics* 27, no.1: 409–24.
- Klein, P.T. 2015. Engaging the Brazilian state: The Belo Monte Dam and the struggle for political voice. *The Journal of Peasant Studies* 42, no. 6: 1137–56.
- Lapola, D.M., L.A. Martinelli, C.A. Peres, J.P.H.B. Ometto, M.E. Ferreira, C.A. Nobre, A.P.D. Aguiar, M.C. Bustamante, M.F. Cardoso, M.H. Costa, C.A. Joly, C.C. Leite, P. Moutinho, G. Sampaio, B.N. Strassburg, and I.C.G. Vieira. 2013. Pervasive transition of the Brazilian land-use system. *Nature Climate Change* 4, no.1: 27–35.
- Loyola, R. 2014. Brazil cannot risk its environmental leadership. *Diversity and Distributions* 20, no. 12: 1365–7.
- Maisonnave, F. 2017. *Ação do IBAMA contra desmatamento embargo frigoríficos da JBS no Pará* [IBAMA action against deforestation embargoes JBS slaughterhouses in Pará]. São Paulo: Folha de São Paulo. <http://www1.folha.uol.com.br/mercado/2017/03/1868784-acao-do-ibama-contra-desmatamento-embarga-frigorificos-da-jbs-no-pa.shtml> (accessed March 25, 2017).
- Martins, J. Souza. 1980. *Expropriação e violência: A questão política no campo* [Expropriation and violence: The rural political situation]. São Paulo: Hucitec.

- MDA (Ministério do Desenvolvimento Agrário). 2015. Terra Legal – Amazônia Legal [Legal Land – Legal Amazon]. <http://www.mda.gov.br/sitemda/pagina/acompanhe-ações-do-mda-e-incra> (accessed April 18, 2017).
- Mertens, B., R. Pocard-Chapuis, M.-G. Piketty, A.E. Lacques, and A. Venturieri. 2002. Crossing spatial analyses and livestock economics to understand deforestation processes in the Brazilian Amazon: The case of São Félix do Xingu in Southern Pará. *Agricultural Economics* 27: 269–94.
- MMA (Ministério do Meio Ambiente). 2015. Plano ação para prevenção e controle do desmatamento na Amazônia Legal (PPCDAm) 3ª fase (2012–2015) – Pelo uso sustentável e conservação da floresta [Action plan for prevention and control of deforestation in the Legal Amazonia, 3rd phase (2012–2015) – Towards sustainable use and forest conservation]. [http://www.mma.gov.br/images/arquivo/80120/PPCDAm\\_FINAL\\_PPCDAM.PDF](http://www.mma.gov.br/images/arquivo/80120/PPCDAm_FINAL_PPCDAM.PDF) (accessed June 25, 2015).
- Miranda, K., M.A. Neto, R.P. Souza, and R. Corrêa. 2016. Perspectivas para a sustentabilidade pela agricultura familiar: possibilidades para transição agroecológica [Prospects for sustainability of family agriculture: Possibilities for agro-ecological transition]. In *Governança Socioambiental na Amazônia: Agricultura Familiar e os Desafios para a Sustentabilidade em São Félix do Xingu – Pará* [Socio-environmental Governance in Amazonia: Family Agriculture and the Challenges for Sustainability in São Félix do Xingu], eds. R.P. Souza, R.C. da Silva, K. Miranda, and M.A. Neto, 122–75. Belém: Instituto Internacional de Educação do Brasil.
- Moore Foundation. 2016. *Deforestation-Free Beef in Brazil*. <https://www.moore.org/article-detail?newsUrlName=deforestation-free-beef-in-brazil> (accessed April 18, 2017).
- Moreira, E. 2016. *O cadastro ambiental rural: A nova face da grilagem na Amazônia?* [The rural environmental registration: The new face of landgrabbing in the Amazon?]. Associação Brasileira dos Membros do Ministério Público de Meio Ambiente. [www.abrampa.org.br/site/?ct=noticia&id=230](http://www.abrampa.org.br/site/?ct=noticia&id=230) (accessed January 5, 2017).
- Nepstad, D., D. McGrath, C. Stickler, A. Alencar, A. Azevedo, B. Swette, T. Bezerra, M. Digiano, J. Shimada, R.R. da Motta, E. Armijo, L. Castello, P. Brando, M.C. Hansen, M. McGroth-Horn, O. Carvalho, L. Hess. 2014. Slowing Amazon deforestation through public policy and interventions in beef and soy supply chains. *Science* 344, no. 6188: 1118–23.
- Nepstad, D., B. Soares-Filho, F. Merry, A. Lima, P. Moutinho, J. Carter, M. Bowman, A. Cattageno, H. Rodrigues, S. Schwartzman, D. McGrath, C. Stickler, R. Lubowski, P. Piris-Cabezas, S. Rivero, A. Alencar, O. Almeida, and O. Stella. 2009. The end of deforestation in the Brazilian Amazon. *Science* 326, no. 5958: 1350–1.
- Oliveira, G. and S. Hecht. 2016. Sacred groves, sacrifice zones and soy production: Globalization, intensification and neo-nature in South America. *The Journal of Peasant Studies* 43, no. 2: 251–85.
- Pacheco, P. and R. Pocard-Chapuis. 2012. The complex evolution of cattle ranching development amid market integration and policy shifts in the Brazilian Amazon. *Annals of the Association of American Geographers* 102, no. 6: 1366–90.
- Paulson, S., L.L. Gezon, and M. Watts. 2003. Locating the political in political ecology: An introduction. *Human Organization* 62, no. 3: 205–17.
- Peluso, N.L., and C. Lund. 2011. New frontiers of land control: Introduction. *The Journal of Peasant Studies* 38, no. 4: 667–81.
- Pereira, A. Reis. 2015. *Do posseiro ao sem-terra. A luta pela terra no Sul e Sudeste do Pará* [From squatter to landless. The struggle for land in the South and Southeast of Pará]. Recife: Editora da Universidade Federal de Pernambuco.
- Pinto, J.N.A. 2005. *Terra do Meio: Estudo de case na nova fronteira Amazônica* [Land in the Middle: An case study on the new Amazon frontier]. *Masters thesis*, Federal University of Pará-UFPA.
- Pinto, L.F. 1980. *No rastro do saque* [In the trail of the plunder]. São Paulo: Hucitec.
- Pocard-Chapuis, R., J. Tourrand, M. Piketty, and J. Bastos da Veiga. 2001. *Cadeia produtiva de gado de corte e pecuarização da agricultura familiar na Transamazônica* [Beef production chain and livestock growth among small farmers on the Transamazon highway]. Belém: Embrapa Amazônia Oriental.
- Poirier, C. 2017. *Brazil's rollbacks jeopardize the Amazon's future*. Americas Quarterly Web Exclusive. July 3. <http://www.americasquarterly.org/content/amazon-protection-brazil> (accessed July 3, 2017).
- Rigg, J., and P. Vandergeest. 2012. *Revisiting rural places: Pathways to poverty and prosperity in Southeast Asia*. Honolulu: University of Hawai'i Press.
- Robbins, P. 2003. *Political ecology*. Oxford: Blackwell Publishing.

- Saidler, M.F.S. 2015. *As (in)constâncias da Urbe selvagem* [The (in)constancies of the savage City]. Ph.D. dissertation, Architecture and Urbanism, Federal University of Minas Gerais, Brazil.
- Schmink, M. 1994. The socioeconomic matrix of deforestation. In *Population and environment: Rethinking the debate*, eds. L. Arizpre, P. Stone, and D. Major, 253–75. Boulder: Westview.
- Schmink, M. and C.H. Wood. 1992. *Contested frontiers in Amazonia*. New York: Columbia University Press.
- Schmink, M. and C.H. Wood. 2012. *Conflitos sociais e a formação da Amazônia* [Social conflicts and the formation of the Amazon]. Belém: Editora da Universidade Federal do Pará.
- Schwartzman, S., A. Alencar, H. Zarin, and A.P.S. Souza. 2010. Social movements and large-scale tropical forest protection on the Amazon frontier: Conservation from chaos. *The Journal of Environment & Development* 19, no. 3: 274–99.
- Schwartzman, S., A. Villas Boas, K.Y. Ono, M.G. Fonseca, J. Doblaz, B. Zimmerman, P. Junqueira, A. Jerozolimski, M. Salazar, R.P. Junqueira, and M. Torres. 2013. The natural and social history of the indigenous lands and protected areas corridor of the Xingu river basin. *Philosophical Transactions of the Royal Society B: Biological Sciences* 368, no. 1619: 1–12.
- Silva, E. and W.S. Tostes. 2012. Caracterização econômica, social e ambiental do município de São Félix do Xingu: Uma análise da última década [Economic, social and environmental characterization of the municipality of São Félix do Xingu]. Unpublished.
- Sousa, R.P., R.C. da Silva, K. Miranda, and M.A. Neto. 2016. *Governança socioambiental na Amazônia: Agricultura familiar e os desafios para a sustentabilidade em São Félix do Xingu – Pará* [Socio-environmental governance in Amazonia: Family agriculture and the challenges for sustainability in São Félix do Xingu]. Belém: Instituto Internacional de Educação do Brasil.
- Taravella, R. and X. Arnaud de Sartre. 2012. The symbolic and political appropriation of scales: A critical analysis of the Amazonian ranchers' narrative. *Geoforum: Journal of Physical, Human, and Regional Geosciences* 43, no. 3: 645–56.
- Thaler, G. 2017. The land sparing complex: Environmental governance, agricultural intensification and state-building in the Brazilian Amazon. *Annals of the American Association of Geographers* 107, no. 6: 1424–43.
- Thy-pin-Bermeo, S. and B.J. Godfrey. 2012. Envisioning Amazonian frontiers: Place-making in a Brazilian boomtown. *Journal of Cultural Geography* 29, no. 2: 215–38.
- Tinoco, J. 2016a. Boi clandestino não morre de velho [Clandestine cattle do not die of old age]. *O Eco*. [www.oeco.org.br/reportagens/boi-candestino-nao-morre-de-velho/](http://www.oeco.org.br/reportagens/boi-candestino-nao-morre-de-velho/) (accessed January 5, 2017).
- Tinoco, J. 2016b. Polícia Federal desmonta quadrilha de desmatadores comandada de São Paulo [Federal Police dismantles deforestation gang based out of São Paulo]. *O Eco*. <http://www.oeco.org.br/reportagens/policia-federal-desmonta-quadrilha-de-desmatadores-comandada-de-sao-paulo/> (accessed July 25, 2016).
- Torres, M.J.D. and D.F. Alarcon. 2017. *Dono é quem desmata: Conexões entre grilagem e desmatamento no Sudoeste Paraense* [The owner is the one who deforests: Connections between land-grabbing and deforestation in the Southwest of Pará]. Altamira, Brazil: Instituto Agrônomo da Amazônia.
- Velásquez, C., A.V. Boas, and S. Schwartzman. 2006. Desafio para a gestão ambiental integrada em território de fronteira agrícola no oeste do Pará [Challenge for integrated environmental management in agricultural frontier territory in western Pará]. *RAP* 40, no. 6: 1061–75.
- Welch, C.A., and S. Sauer. 2015. Rural unions and the struggle for land in Brazil. *The Journal of Peasant Studies* 42, no. 6: 1109–35.
- Wilshusen, P.R. 2003. Exploring the political contours of conservation: A conceptual view of power in practice. In *Contested nature: Promoting international biodiversity with social justice in the twenty-first century*, eds. S.R. Brechin, P.R. Wilshusen, and C.L. Fortwangler, Chapter 3. Albany, NY: SUNY Press.
- Wood, C.H. and M. Schmink. 1978. Blaming the victim: Small farmer production in an Amazon colonization program. *Studies in Third World Societies* 7: 77–98.

**Marianne Schmink** is Professor Emerita of Latin American studies and anthropology at the University of Florida, where she served as Director of the interdisciplinary Tropical Conservation and Development (TCD) research and training programme from 1988 to 2010. She co-authored (with Charles H. Wood) *Contested frontiers in Amazonia* (Columbia University Press, 1992), published in Brazil as



Conflitos Sociais e a Formação da Amazônia (Editora da UFPA, 2012), plus four other books and over 50 articles, book chapters and reports. Email: schmink@ufl.edu

**Jeffrey Hoelle** is an associate professor of anthropology at the University of California, Santa Barbara. His research examines human–environment interactions in the Brazilian Amazon, with a focus on the cultural dimensions of destructive environmental practices, such as cattle ranching and gold mining. Hoelle is the author of *Rainforest cowboys: the rise of ranching and cattle culture in Western Amazonia* (University of Texas Press 2015). Corresponding author: hoelle@anth.ucsb.edu

**Carlos Valério A. Gomes** is an assistant professor of rural socioeconomics at the Center for Agrarian Studies and Rural Development, Federal University of Pará, Brazil. He has worked for over 20 years with state governments and local and international non-governmental organisations on environmental and development issues in the Brazilian Amazon. His research focuses on land-use changes, socio-economic analysis, conservation units and livelihood diversification among small farmers and agro-extractivist groups in the region. Email: valeriogomes@ufpa.br

**Gregory M. Thaler** is an assistant professor of international affairs at the University of Georgia. His research focuses on the political ecology of tropical land-use change and the evolution of global environmental governance. Email: gthaler@uga.edu