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The Land Question in Amazonia: Cadastral Knowledge and Ignorance in Brazil's Tenure Regularization Program

In the Brazilian Amazon, a questão fundiária (the land question) has been asked and answered in a variety of ways since the region was opened up to large-scale migration and development projects in the 1960s. The question of who is entitled to land and under what conditions is at the heart of most debates concerning the region's future, but recent attempts to reform and simplify rural land tenure in Amazonia confront a history of contradictory land-use policies and a legacy of impunity. In response to economic and demographic pressures, the Brazilian state aims to combat the illicit occupation, sale, and transformation of lands. This article presents an ethnographic approach to the land question in Amazonia by studying the knowledge-making practices associated with the Programa Terra Legal (Legal Land Program), Brazil's effort to create a cadastral registry for rural holdings in the region. It argues that tenure regularization dedicated to securing smallholders' rights and to instituting environmental regulations is being used by rural elites as a mechanism to accumulate land and power. By showing how a reform program gets remade in the thrall of local interests and vernacular dispositions of property, this article reveals how knowledge both illuminates and obscures subjects of governance. [environmental governance, property, development, knowledge, Brazil]

In June 2010, state and federal agencies that oversee colonization and rural holdings in Brazil cancelled the title to a property in Vitória do Xingú, Pará. The ranch had been registered in 1990 in one of Amazonia's 553 privately run *cartórios* (title agencies), and the paperwork appeared to be in the proper order, save for one thing: the amount of land covered by the title totaled 410 million hectares, or three times the size of the state of Pará.¹ The absurdity of the claim was balanced only by the ubiquity of such stories in rural Amazonia, where claims posted by homesteaders, ranchers, and distant corporations piled on top of one another. Analysts, academics, and rural settlers alike have focused on the corruptible and ambiguous nature of the tenure system in Amazonia as a key driver in deforestation and social unrest in the region (Fearnside 2005; Schmink and Wood 1992). According to Felício Pontes, of the Federal Public Ministry, when the National Council of Justice upheld the cancellation of the Vitória property—along with three dozen other nonexistent ranches—the prosecutors and public defenders heralded it as “the start of a new age

of accountability and compliance with law, not just in Pará, but throughout Amazonia and Brazil itself” (interview, August 6, 2010).

On the day that the Vitória property was cancelled, I was several hundred miles away, leaning over a rough-cut wooden table on a rural homestead in Novo Progresso, Pará. I was visiting an old friend, João da Mata,² who had been one of the first beneficiaries of a new tenure regularization program run by the Brazilian government. Months earlier, functionaries from the *Programa Terra Legal* (Legal Land Program) had visited João to bestow upon him the free-and-clear title to his 298-hectare (736-acre) farm. João nailed the title, which was stapled to a computer-generated map of his farm and a packet of legal documents, to the clapboard wall in his cabin. The bundle of papers occupied a place of honor alongside a statue of *Nossa Senhora* and a hastily framed photo of a championship soccer team.

While several orders of magnitude separated the Vitória claim and João’s, their stories are linked. Both are the result of Brazil’s recent and ongoing technocratic engagement with the issues of tenure and property rights in Amazonia. Reining in violence and predatory land use are goals in a suite of emerging environmental governance policies, including the new Brazilian Forest Code and *Cadastro Ambiental Rural* (rural environmental registry, hereafter CAR) procedures.³ Often framed in public debates as *a questão fundiária* (the land question), pressure has been building on legal authorities to reform or clarify the fundamental questions concerning land ownership in Amazonia. In practice, the land question comprises many questions concerning the future viability of claims, expectations, and legal dispositions of the nearly 24.5 million inhabitants of the Brazilian Amazon, from indigenous peoples, to landless peasants, to large-scale *latifundiários* (landowners). Though the debates concerning the Forest Code have grabbed headlines and the CAR program is broadly national in scope, the Terra Legal Program, which has operated in the Amazon region since 2009, quietly signals Brazil’s response to the land question. Terra Legal’s goal is to produce an authoritative and geo-referenced cadastral map of all land holdings in the Amazon region. Such an undertaking is as much an exercise of state power—an attempt to fix a singular vision of territory in a standardized database of knowledge—as it is an attempt to reckon with nearly five decades of overlapping and contradicting property regimes in the region. This article approaches the Terra Legal Program ethnographically, asking how cadastral knowledge emerges socially in rural Amazonia, and showing how an official attempt to address tenure confusion falters on its own contradictions.

The cadastre map is an elegant solution to Brazil’s territorial management challenges; after all, there is no room on the map for a claim three times the size of Pará. Furthermore, the cadastre map collects and concentrates data that will be useful in ecological–economic zoning efforts, in the protection of national parks and indigenous areas, and in the assessment of taxes. Terra Legal is presented as the program that will finally expose the abuses and speculations of the well-heeled and return the public resources of Amazonia to smallholders, whose claims are favored in the regularization process. If the current status of land in the region is jumbled with disputes and overlapping titles, Terra Legal aspires to smooth out the

map and render a one-to-one correspondence between government knowledge and facts on the ground. A new era of rational, environmentally correct, and socially just territorial development is within reach.

This article follows Brazil's efforts to regularize territorial claims in Amazonia. More specifically, I use an ethnographic perspective to explore how the state and local claimants are producing answers to the *questão fundiária*. In field interviews and archival research from the program's inception in 2009, I have tracked the progress of Programa Terra Legal both as an elaboration of a theory—that government policy could address tenure confusion through the production of unambiguous cadastral knowledge—and as a matter of practical engagement for rural settlers and program officials. My analysis of the program focuses on a region where I have conducted research on development and changing territorial practices since 2002. When Terra Legal began, it set a five-year timetable in which it would regularize and issue titles for an estimated 300,000 property claims in Amazonia. At present, scarcely 1,000 titles have been issued, but this is not to say that the program has been ineffectual. I argue that land tenure regularization in Amazonia has effectively introduced a knowledge regime that flattens land into data that can be manipulated and information that can travel. The achievement of a singular regime of knowledge concerning land, however, actually obscures fraud and abuse from view. Tenure regularization dedicated to securing smallholders' rights and to instituting environmental regulations has actually, and perversely, become a mechanism through which powerful interests can accumulate land and accentuate rural inequalities. These insights are only revealed if Terra Legal is situated within the already existing idioms and practices of property making that settlers have created and contested over the past several decades in Amazonia. It is my hope that, by showing how a reform program gets remade in the thrall of local interests and vernacular dispositions of property, useful insights will emerge regarding how knowledge both illuminates and obscures subjects of governance.

Proud of his freshly issued title deed, João da Mata is one such subject of governance, a willing participant in Terra Legal. But the story does not end with his farm's appearance on a cadastre map. At dusk, a fleet of tractor-trailers begins to rumble past his farm, each loaded with a dozen cattle en route to a distant slaughterhouse. João does not own the cattle, but the men who do will trade on João's good name (and good title deed) to represent the herd as fully licensed and sustainably managed. In fact, the tractor-trailers left from clandestine farms located within the *Floresta Nacional do Jamanxim* (Jamanxim National Forest),⁴ but they will glide through checkpoints along perilous dirt roads with little problem. João is not proud of the role he's playing in providing cover for these activities, but the exigencies of debt and a stagnant rural economy mean that his most tradable asset is his participation in Terra Legal. Located and cross-referenced in the state's emerging system of cadastral knowledge, João's farm can launder the materials of the preexisting tenure arrangements in Amazonia, wherein debt, speculation, and threats of violence continue to dispose men, objects, and territories in arrangements that Foucault might well have recognized as governmental.⁵

Tracking Tenure Regularization in Amazonia

The logic of land tenure in Brazil's *Amazônia Legal*⁶ is a baroque and confusing one. Principles of alienation and severability can be traced back to Portuguese crown *sesmarias* (land-grants), though subsequent imperial (in 1850) and dictatorial (in 1964) land statutes provide more relevant and recent legal backing for title. In Amazonia, the public domain has been at the center of state-making colonization projects since the early 1970s. At first to give "land without people to people without land," the Brazilian government sponsored agrarian reform projects along newly opened highways in the region.⁷ Road building also fit with the military dictatorship's national security agenda, which stressed occupation of the supposedly empty Amazon. This zeal for occupation was responsible for the promulgation, throughout the 1970s and '80s, of varied policies and procedures that guided occupation, homesteading, and alienation of public lands in Amazonia. The federal government nationalized a 20-kilometer (12-mile) strip along new highways, and dedicated this land to small-scale colonization projects for Brazil's landless; it is managed by the National Colonization and Land Reform Institute (INCRA).⁸ The highway strip was subsequently expanded to a width of 200 kilometers (124 miles), and large swaths of land were immediately sold to corporations and wealthy investors seeking favors from the government or a hedge against inflation. In the 1980s, a clear distinction emerged between a class of absentee, well-connected owners—with titles to back their property—and a mass of occupants who made their claims visible through the doctrines of improvement and adverse possession. Per Brazilian law, if adequate improvements were made to a homestead, which included replacing between 50 percent and 80 percent of standing forest with field or pasture, a usucaption claim was valid after as little as a year and a day (Alston et al. 1999).

Systems of trails and burnt-out clearings became claims on land, even as the late 1980s saw a privately funded push for corporate colonization, in which companies obtained official titles to immense acreages and sold subdivided parcels to agricultural migrants from southern Brazil. This climate was ripe for manipulation by *grileiros* (land grabbers), who falsified title deeds in order to sell lands to unsuspecting migrants.⁹ *Grilagem* (land grabbing) schemes depended on the network of *cartórios*, in which official-looking deeds could be registered and reregistered to achieve a semblance of legitimacy. Violence often accompanied the work of *grileiros*, who either intimidated counter-claimants to clear way for their frauds or spread rumors to encourage confrontations between third parties. A climate of fear and government ineffectiveness was good for business (Zimmerman 2012). Even where INCRA was able to delineate agrarian reform settlements and homesteader titles from those of corporations and ranchers, by the early 2000s the state's own tenure regime was subordinate to the improvised practices of speculators who strove to appear legitimate.

Even in this short synopsis, challenges for tenure regularization are apparent: different actors, with differing legal standing, have used divergent practices and legal principles to establish title in the region. These efforts have been inflected by illegal actions, from forging titles to scorched-earth campaigns, modalities that have at times been encouraged by official sanction. Terra Legal, which was formulated largely by a team

of legal scholars, prosecutors, and rural development officials, seeks to intervene in the self-perpetuating confusion of Amazonia's property regimes. How it aims to do so is explored below; but, first, the analytical challenges must be considered in order to understand what is at stake as Brazil elaborates a new vision of territoriality.

Guided by critical studies of technocracy, state power, and environmental management, I make three assumptions that frame my ethnographic approach to Terra Legal. The first assumption is that government programs become real and effective only within social fields that are historically situated and permeated with power relations. Little is learned by attending only to Brazil's intentions with Terra Legal; neither should the analysis take on a merely evaluative dimension in judging the success of the program on its own terms. Instead, I approach Brazil's tenure regularization program as a contested terrain in which concepts and discourses—transparency, accountability, and regularity itself—encode practices of government on a population, objects, and landscapes. The ethnographic works of Tania Murray Li (2007) and Arun Agrawal (2005) build on Foucault's concept of governmentality to show the particular interest that states have in "establishing limits and frontiers, fixing locations, [and] making possible, guaranteeing, the circulation of people, merchandise, air" (Foucault 2007:29). As states elaborate their own visions of territoriality, world-changing transformations leap from the planning board with all sorts of unintended consequences (Scott 1998). This recent work on how environmental governance is taking shape through technocratic reform reveals how government—in its institutional sense and in the idea of "conducting conduct"—can become a strategic resource for peoples and communities who become entangled within it.

Power struggles over the possession and meaning of land are long-standing in Amazonia, as are struggles over producing knowledge about land. The emergence of the phrase *questão fundiária* is a case in point. This shorthand collapses competing interpretations of territorial struggles in the region and offers a particular kind of government intervention as the required solution to the land question. The *questão fundiária* is quite different, for example, from a *questão agrária* (the agrarian question). Scholars of peasant studies and leftist political scientists posed the agrarian question in the 1970s and '80s; they carefully documented how the shift in colonization policy opened Amazonia to a concentration of wealth and the immiserization of the peasantry (e.g., Bunker 1985; Foweraker 1981; Velho 1982). In the current fashion of Brazilian academic and popular writing, a *questão agrária*—which signals the existence of agrarian relations and the possibility for class-based articulations of justice—is replaced with the more anodyne and technical "land" question. To satisfy the land question, one's attention is oriented toward settling questions of ownership, in which the concepts of alienation, occupation, improvement, and severability leap to the analyst's aid. The current use of a *questão fundiária*, even by scholars critical of Brazil's capital-friendly stance in development policies, is testament to its power in naming and defining the object and tactics of government intervention (Brito and Barreto 2011; Gomes n.d.).

The second assumption is that all projects of knowledge creation are about labor in two ways: (1) the material process of creating, collecting, or assorting information of

all kinds into stories that model the world; and (2) these stories allow work to be done in and on the world so modeled. This is a rather basic, but extremely useful, precept of much of the work in science and technology studies, and serves as a corrective to students of Foucault who may focus too much on discourse with little account of the material inputs and outcomes of knowledge production. Andrew Mathews (2011) recently showed how mobilizing knowledges about Mexican forests allowed those forests to become subject to state visions and practices. A correlative result, however, was that knowledge meant to represent forests and forest communities also served to obscure and occlude local practices; thus knowledge making was accompanied by the making of ignorance. Labor is required for both, and such labor is always materially and spatially entangled in power dynamics. The specific labors required to make the Terra Legal cadastre result in far more than a regularized map of rural Amazonia: cadastres create a theory of property and state authority while obscuring illicit territorial behaviors and relationships.

The third, and final, assumption on which this work rests is that systems of knowledge and accountability never fully colonize a place; therefore, the histories and territorialities that precede state fixes to the land question must be examined. Terra Legal is a “traveling theory,” a bundle of categories and techniques that seeks to rearticulate property relations between humans, nonhumans, and governments. But it does not enter a vacuum, and tenure regularization is not a theory that smoothly and evenly rolls through the territory on which it is imposed (cf. Tsing 2008:147). Ethnographers have shown the persistence of traditional and customary rights in the face of state-backed property fixes that supposedly develop or modernize rural landscapes (Doolittle 2005; Grandia 2012; Tsing 2002). In the case of colonization corridors in Amazonia, settlers have worked out an often violent and extremely persistent set of practices and perspectives on property. These will not be easily dislodged, even as they are the very targets of property reform. Indeed, as I show in this article, the arrival of property regularization provides powerful stakeholders the ability to produce state-required forms of territorial knowledge while simultaneously obscuring the unknowable in a shroud of ignorance. The labor of participating in the state’s knowledge regime creates the conditions through which that regime is subverted by preexisting property relations.

Because cadastral knowledge is a special form of knowledge, the rest of this article is devoted to understanding how it is made and unmade in Amazonia. A rich vein of critical geography and development studies literature that focuses on the politics of cadastres in Latin America and Africa has shown that the state-building motivations for conducting a cadastral survey are often met with resistance from those who would be mapped (Berry 2009; Hughes 2001), or by technological and practical difficulties (Zoomers and van der Haar 2000). Terra Legal’s cadastre blends geo-referenced satellite data of properties with information about persons into a bank of knowledge that will guide development policy, conservation efforts, and conflict resolution. If mapping makes the surveyors “masters of all they survey,” Terra Legal is certainly an attempt to reassert Brazil’s authority in Amazonia (Burnett 2000). Cadastres have long served the power and vision of the state, and surveying tax assessors have often been just behind conquering armies (Kain and Baigent 1992; Mitchell 2002). Brazil’s

cadastre in the Amazon comes decades after the subjugation of the region's native peoples, but its arrival is no less impactful and emblematic. In a region marked by structural inequalities (Fearnside 2001), anti-indigenous racism (Sant'Anna 2010), and the rise of environmental social movements (Baletti 2012; Hochstetler and Keck 2007), the Brazilian state's premiere method for engaging the region is to integrate it into the "geo-body" of the nation-state. Fundamental and nonoverlapping data points are required first to ensure that distinctly Brazilian principles of governance spread evenly throughout the mapped body of the nation (Winichakul 1994). As Kregg Hetherington recently wrote regarding a similar effort to spruce up tenure knowledge in Paraguay: "New, modern cadastres were needed, which would turn the meandering documentary trails of registration systems into systematic parts of nested wholes" (2012:137). These cadastral fixes are fundamental if the modern state is going to integrate the fugitive landscapes that lie outside the predictable exercise of state knowledge and power.¹⁰ These cadastres, then, are distinct from the cadastres of Roman magistrates or Spanish colonial officials, registries that delivered privileged information to the sovereign to aid in the exercise of authority. Made for and with the conceptual frameworks of neoliberalism and development orthodoxy, these cadastres are meant to make public and obvious the triumph of a singular figuration of territory. They are meant to be transparent and beyond reproach; even actors who wish the state would engage with other matters should not be able to deny the utility of having a publicly available map of the realm. In a double move, Terra Legal is to conduct a transparent knowledge-collection process that will result in a transparent product. But how, in creating cadastral knowledge, can an emphasis on transparency also obscure that very knowledge?

The Terra Legal Program

Pará is the Amazonian state where land-titling uncertainty is most acute. Official statistics report that nearly 36 percent of its territory lacks clear definition, but this ignores legally insecure (but practically effective) land claims within protected areas, such as indigenous territory, national parks, and national forests (in Pará, protected areas total 51 percent of the state's total area; Brito and Barreto 2011:15). Since 2000, more than 1,000 land conflicts have been registered in the state (Brazil Ministry of Agrarian Development 2012); in some communities, consortia of grileiros talk openly of who is on their "hit list."

Terra Legal entered into force of law on February 10, 2009, with President Lula's Executive Order MP 458. Almost immediately, the program took aim at Pará as the state with the most critical need for intervention. I witnessed six encounters between Terra Legal (TL) officials and rural settlers in summer 2010, and twice as many in 2011, in the municipality of Novo Progresso and district of Castelo de Sonhos, Pará. I accompanied TL surveyors as they walked properties to make maps, and spoke with interviewees like João da Mata before, during, and after their interactions with the program. Though federal officials had initially hoped that the use of GPS technology and Internet registration would accelerate the issuance of titles, scarcely 1,000 of the 300,000 anticipated titles have been issued after three years of the program. Where

TL has been most active—and by its own accounts most successful—is precisely in the region of western Pará, where I conduct my fieldwork, and where 463 titles have been issued (Brazil Ministry of Agrarian Development 2012).

Terra Legal identifies three levels of beneficiaries, and encourages all potential claimants to engage with the program and appear on the cadastre map. The program's most generous incentives are offered to small homesteaders who claim or occupy no more than 75 or 100 hectares (185 or 247 acres, respectively), depending on the municipality. For these claimants, the state will issue a title at no charge after registering with TL, providing there are no conflicts or counterclaims on the area and that the applicant has no debts, which is ascertained through a social security search. Acquiring a title at no cost—without charge for registry, geo-referencing, or the value of land—is a benefit only available to the poorest smallholders, who are among the most enthusiastic of TL's clients. For João and other medium-sized proprietors (100 to 400 hectares; 247 to 988 acres, respectively), a provisional title is issued when an applicant clears the basic background check, and a full title follows after the proprietor pays the federal government a below-market fee for the land. Claimants have 20 years to pay this fee, interest-free. Finally, large-scale ranchers and latifundiários who claim in excess of 400 hectares, but less than 1500 hectares (988 and 3,707 acres, respectively), will have their properties inspected to ensure that there are no unreported conflicts or environmental law violations. In addition, large proprietors will have to pay market rate for their land, though they also have 20 years to do so, interest-free. TL effectively cancels all claims in excess of 1,500 hectares. To prevent a rush of deforestation to anchor new claims, TL provides that an applicant can only seek to regularize a property that has been continuously inhabited since at least December 31, 2004. Also crucially, all TL titles come with the mandate that no landholders will sell their regularized lot for ten years, regardless of the size of the property.

The process proceeds in four stages. In the first stage, claimants register with TL and provide basic information about themselves and the property they are seeking to regularize. Registration is conducted only online, but in keeping with their orientation toward rural landholders, TL teams have brought registration fairs to dozens of rural communities (see Figure 1).

The second step is to geo-reference the property so that it appears on the emerging cadastral map. Small landholders are given preference here too, and teams of TL functionaries fan out to survey and then geo-locate their properties. Larger proprietors typically contract a private surveying firm to create the necessary coordinate and line-of-sight data, which is then evaluated by TL officials when they visit. Geo-referencing—the crux of TL's novel cadastral fix—has proven to be arduous and time-consuming. Field visits to small- and medium-sized properties can take several hours, or even days, and are further delayed by the requirement that functionaries must meet with the registered proprietor, who may be absent at the time of TL's visit. Inspections of large-scale properties can take more than a week (see Figure 2).

The third phase of TL is the consolidation of personal and geographic information, and, in the case of medium- and large-scale land applicants, the collection of payments



Figure 1: Registering with Terra Legal. Photo by author.



Figure 2: Rural inspection. Photo by author.

for the transfer of ownership from the public trust to the individual proprietor. This allows for the fully emergent cadastral map, which correlates information on individual citizens and alienated properties within the political–economic coordinates of a nascent land market with taxable asset valuations. Finally, the fourth phase is the issuance of the title, which immediately offers to the bearer the prospect of bank financing, even with the ten-year ban on selling regularized titles.¹¹

Officials in President Lula’s administration, and President Dilma’s subsequent administration, have championed TL as a progressive program that benefits the most vulnerable Amazonian populations, imagined here as claimants to small parcels, while also providing a means to protect the environment. Restricted to implementation in Amazonia, TL can be seen as the tip of the spear for federal environmental policies—including the new Forest Code and rural environmental registries—that advocate individual responsibility and government transparency achieved through advanced technologies. To enhance their position, advocates for the program cite studies that show how tenure insecurity contributes to a cycle of opening up new land for settlement and deforestation (Fearnside 2005; Girardi 2008). Clarifying who owns what is presented as the answer to the interwoven crises of socioeconomic vulnerability and environmental destruction. Critics of the program seem muted in their response to TL as the latest keystone of federal development policy in the region. According to personal communications with urban activists in environmental and agrarian reform organizations in June 2013, at least it is better than having no plan at all.

Still, some point out that the program rewards the acquisition of property using fraud, and that it does not punish claimants for any environmental crimes they may have committed in the past on their properties. In addition, the directors of TL have publicly announced that they will not consult satellite data from the early 2000s to confirm whether properties were occupied before December 2004. Many see this as an amnesty for those behind the spike in deforestation in western Pará that accompanied the expansion of soy and investment in highways from 2006 to 2010 (Brito and Barreto 2011:46–47). However, perhaps the most telling critique of the program is one I heard repeatedly from beneficiaries in western Pará in reflecting on the general posture of government vis-a-vis land. “It’s just how it has always worked here,” one explained, “just act the part of the *dono* (owner) and sooner or later you’ll get recognized as the owner.” The cunning of post facto regularization—which has operated in squatter invasions and real estate swindles throughout Brazil¹²—was at work in the heart of Amazonia, as well.

Laying Stakes in Land

The cadastral fix seeks to signal the triumph of a modernist land regime in Amazonia that centralizes knowledge; emphasizes an informational correspondence; and smooths circulations between citizen, territories, objects, and government (Scott 1998). But if TL achieves some semblance of this high modernist dream, it does so not through the seamless unfolding of state visions but through the crafting of

conceptual resources that implicate rural settlers in state reforms. These conceptual resources become vital in the give-and-take of creating cadastral knowledge; they are made in the interactions between technocrats and program beneficiaries. More importantly, these conceptual resources signal a bridge between state visions of territory and the practical knowledge and expectations that colonists have long pursued. Producing cadastral knowledge requires that actors focus their labors on measurability, representation, and historicity; in the cadastre, these qualities and capacities become symbolic of land and its newfound status in government.

Terra Legal seizes on measurability as the most significant quality of land. The size of a particular parcel determines the ways in which it will be incorporated into the cadastre. Teams spend hours searching for boundary points and property lines, and ignore data about species diversity, hydrography, topography, and microclimate. Land's capacity for life—its soil, its water, and its mineral resources—serves only for passing conversation as teams busy themselves measuring the extensiveness of property. For this work, clear days are better than cloudy because a satellite may be called on to aid in measurement, not because sunlight changes the interactive characteristics of teeming life in the land. Here, a reduced and rarefied vision of territory is at work, even as mapping teams work through mud and stumps and pastures. A centralized regime of control (taxation, enforcement) and knowledge production (maps that reveal certain features of territories while ignoring others) flows from this labor. This work also reinforces settlers' own preoccupation with the measures of their claims. Several farmers I knew cheerfully accompanied TL mapping teams, intensely curious to hear numbers and see maps of their claims. Overall, the preeminence of the measurable produces land as a proto-commodity, imagined as nearly ready for the market, which will flatly compare surveyed parcels and allocate values based on all that is plotted and counted: acreage, distance to roads, percentage of claim still in forest, and so on.

Measurement ensures that land can be represented. It can be reduced to salient features and discussed within a market. Information about land can travel and represent it far from the claim itself; thus representation is another key conceptual resource that bound TL workers and rural settlers together in the production of cadastral knowledge. Maps are powerful tools for political representation (Burnett 2000); in the making of Brazil's new map, claimants were keen not only to appear on the map but also to be able to use this technology to their own political ends. In Novo Progresso in 2010–11, Terra Legal focused on regions that had been deeply affected by land fraud and deforestation; communities where it was commonplace to refer to the Brazilian state as “absent” from the area. As Gauchão, a settler who arrived in Pará from Mato Grosso in 1995, explained:

It's very important that we show up on the map—whether it is the map of Brazil, or Pará, or the map in your notebook. We want those maps to bear our names and for those names to represent us. . . . [W]e have a lot to discuss and to resolve. We're citizens of a nation, and this is the 21st century! [Interview, June 2011]

Here Gauchão is articulating his hope to have a stake in Brazil. Many rural settlers in Novo Progresso are opposed to the federal government's recent declarations of national forests and other protected areas nearby. To them, Terra Legal is an opportunity to become recognized as a stakeholder, an idea that carries weight with development planners in Brazil. Of course, this is exactly the type of citizen-stakeholder that cadastral knowledge creates and requires: the ability of citizens to represent themselves and participate in democracy are based on the map, on being propertied, and on being recognized as the proper person to speak for Amazonian landscapes. This is a political arrangement in which registered lands are a prerequisite for speech that matters; in rural Novo Progresso, where seemingly everyone has something to say to the federal government, the arrangement Terra Legal offers is expedient. In this sense, land represented in the cadastre is directly linked to political representation and the distributed ability to make claims.

Cadastral knowledge also posits a version of historicity that resonates between the state's and locals' orientations toward the notion of the frontier. In the modernism peculiar to settler states, land is a physical object through which history moves: the frontier unfolds, a pioneer trail becomes an interstate highway with trunk roads, and civilization rolls ever onward in one direction. A property map sets a definitive start date to this teleology, and caps off "prehistory" because future legal questions will route backward through the map as it is configured today. Terra Legal is immensely important for rural Amazonians, who feel that they have been abandoned by Brazilian civilization, and who desire to be reincorporated into the march of the nation's progress. For self-asserting pioneers, getting onto the map means that they have made their mark on history. Toninho, a ten-year resident of Castelo de Sonhos, with a 100-hectare (247-acre) claim, explained: "This place is not part of Brazil yet. It's still wild, and what I have here today could be gone tomorrow and no one would ever know" (interview, July 2010). When a fleet of Terra Legal trucks brought computers to Castelo in August 2011, Toninho was the first in line to register his property and attempt to get on the map.

I call measurement, representation, and historicity conceptual resources because they are ideas and assumptions that become useful in the production of cadastral knowledge. They orient the labor and material interactions between the people making the map and the territories on the map. As such, the knowledge from the map reflects these conceptual coordinates: measured land can be reduced and reworked; registered stakeholders assert their rights to represent their land; and the registry of claims signals a dawning of deferred civilization. With these tools as process and product, Terra Legal works to both ask and answer the land question in Amazonia. Gaps in territorial knowledge, absences in representational politics, and doubts about progress are cast as problems in search of solutions. These are priorities for both technocrats and rural settlers, who either already share modernist assumptions about land, democracy, and historicity, or come to do so through the common labor of making the map. As a creator of knowledge, Terra Legal produces information that can travel within the circuits of improvement; it renders legible the territories and citizens who will become objects of government (cf. Li 2007). However, this map also obscures things from view.



Figure 3: Clandestine cattle in Novo Progresso, Pará. Photo by author.

Rendering Illegible

The cadastral fix holds things and knowledge in place only from a certain point of view. In Amazonia, a techno-managerial perspective gains traction through Terra Legal, as rural settlers size up territory in ways that resonate with the emerging state vision of property regularization. However, the cadastral fix does not necessarily fix territories in place. Previously arranged systems of property relations—founded on fraud, informal debts, violence, and opportunism—continue and even flourish under the surface of TL’s interventions. For the rural elite in western Pará, property regularization has shielded their territorial practices from view, and has provided a means for the consolidation of power and accumulation of resources.

Recall João’s participation in asset laundering, a scheme known locally as *boi pirata* (pirated cattle) (see Figure 3). João is a tenant with a medium-sized lot, who agrees with the principles of property regularization and proudly displays his title in the hearth of his home. But he is one of dozens of newly titled farmers whose names, properties, and GPS-located coordinates are used to sanction the sale of cattle raised on illegal ranches located within national forest lands. João explains:

I’ve been in debt to a consortium of *os grandes* (big guys) for one reason or another since I got [to Novo Progresso]. I was in a logging partnership that went bust, and now I owe these guys a ton, plus interest. But there’s no market here: the government won’t let you sell lumber, and I can’t compete with soy, not here. So there’s cows: and I can’t compete with these bois piratas, either. They’ve got thousands of cattle there in the park, so what can I do? They will call in my loans—or shoot me—if I don’t cooperate. [Interview, August 2011]

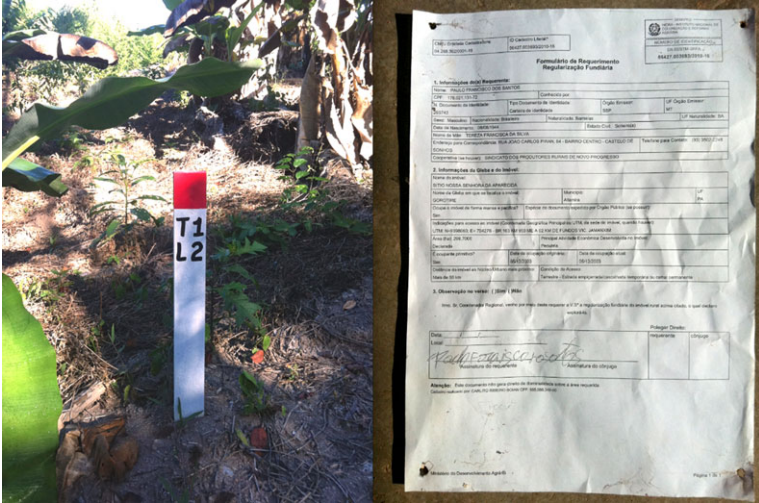


Figure 4: Terra Legal boundary marker and registered promise of title. Photos by author.

Despite his land being newly titled, João cannot escape the rural political economy that preceded TL. Facing debt, threats, and a moribund local economy, he feels that the only thing he can sell is the legitimacy that attends his property title. Boi pirata is further abetted by the belief—largely justified—that government officials will not cross-reference properties listed as the origin points for clandestine cattle with satellite imagery. Were they to do so, the thousands of cattle streaming off João’s modestly sized farm would certainly appear anomalous.

The artifacts TL leaves behind are manipulable. Take boundary markers and title notes, for example, which hardly stay fixed in place after the mapping is done (see Figure 4). Settlers dig up portable wooden stakes and relocate them, often to send a message to a neighbor or to ward off the threat of squatters. This practice is reminiscent of *avivamiento de mojones* (giving life to the markers), a judicial procedure in some Spanish-language Latin American countries through which proprietors move boundary posts to enlarge their holdings (Edelman 1992:138–139). Though TL’s electronic cadastre map does not reflect the change, relocated boundary markers and trails are a useful tool in the world of homesteading and coordinated invasions. One enterprising settler in Castelo de Sonhos boasted, “I have my own GPS, so I know the real points. Moving around the stakes causes confusion for the other guys” (interview, August 2011). Since TL does not proceed parcel-by-parcel, a lone beneficiary in a rural neighborhood can afford to use stakes expansively as new symbols of authority. A secondary market in title notes has also developed, wherein the possessor either sells (or, more commonly, rents) the title to another, who uses it to finance a bank loan, register mobile property, or settle probate disputes.¹³ Since the “lent” titles will accompany other paperwork to the same cartórios where fraudulent title deeds have long been registered, there is little chance that federal or state authorities will take notice.

The speculative tactics of *grilagem* live on in the era of regularization, and continue to serve the interests of rural Amazonia's most powerful actors. Though TL provides no avenue to legalize claims exceeding 1,500 hectares (3,707 acres), large-scale proprietors have worked out a solution whereby they retain control over thousands of hectares. In Novo Progresso, I found that rich claimants often subdivide their vast holdings into parcels of 50 to 400 hectares (123 to 988 acres, respectively), and then privately finance the registration of these lots (with TL) in the names of third parties. The costs of geo-referencing and acquiring the land are borne by the *latifundário*, who recruit smallholders to receive lots in their own self-stylized agrarian reform allotment. What appears to be a redistribution of landed assets by a patron turns out to be a cunning scheme; here again, debt is the motive force. The patron is happy to "give" land to peasants who are already in his debt, or otherwise recruit new acquaintances unfamiliar with compound interest. He draws up and notarizes contracts, which dictate that the new titleholders will forfeit their properties if (more likely, when) they fail to pay back the financed value of the parcel. Under threat and in a state of panic, smallholders ensnared in this scheme agree to settle all accounts by signing an *ato de doação* (act of donation), the only legally viable transfer of title allowed during the first ten years of a regularized parcel's life. Thus TL's procedures (such as financing the cost of land) and rules (the ban on sale) become mechanisms through which rural elites can alienate parcels of their original (illegal) claim and then manipulate preexisting levers of debt and intimidation to reconsolidate their massive holdings. The particular methods that elites employ in this scheme are illegal, yet familiar, to anyone who has knowledge of property speculation in the region (Campbell 2012b). The scheme's end appears completely legitimate in the eyes of cadastral knowledge.¹⁴

Despite the program's explicit orientation toward rationalizing Amazonian tenure and defending the rights of the region's most vulnerable, Terra Legal has provided a means for inventive elites to elaborate on preexisting practices of exploitation and territorial manipulation. Furthermore, in the construction of cadastral knowledge, only certain kinds of information about land are keyed to travel. Data not fitting the regime of transparency—informal debts, pirated cattle, and accelerated accumulation of real estate—are occluded from view. Property regularization looks to incorporate land into measured knowledge, the nation-state, and history itself, and from this perspective nothing appears amiss in Terra Legal.

Conclusions: Government and the Coming Boom

Currently, there is a seeming alignment between state visions and rural dispositions toward territory in the Brazilian Amazon: technocrats and claimants "want property to settle down, to put itself properly in their hands" (Tsing 2002:128). They work together to make regularization, which requires that certain types of knowledge about land be crafted and travel. Should property settle down, its status as a shifting set of material and social relations will have been successfully fixed by a regulatory machine that apportioned some humans and some things a vaunted status. In this article, I have traced how efforts to objectify and stabilize property produce knowledge that

illuminates an object—the cadastre—while simultaneously obscuring abuses. As Terra Legal reduces relations to data points so that they can be governed, rural settlers line up to participate in what they view as a long-deferred state-building project. Many also participate because regularization inoculates their speculative schemes from detection.

Rural landholders like João and Toninho want their lands to count, and this formulation leads them to engage TL's regimes of measurement, representation, and historicity. Brazil's regularization efforts have taken shape as much from the desires and labors of settlers like these smallholders as from satellite technology and bureaucratic directives. Thus far, the program has seemed to quiet western Pará: far fewer land conflicts have been reported and deforestation is in decline (Soares-Filho et al. 2014). Despite their historic differences, smallholders, squatters, and ranchers find roles for themselves in the configuration of government that TL offers. It is perhaps enough that each views severable, salable real estate lots as the commodity of the future. Land prices in western Pará have tripled in Novo Progresso since the start of Terra Legal, despite the ban on sale of program parcels. There is a property boom coming, and TL allows locals and the government to use knowledge to get in front of the boom, even as the program hastens the boom's arrival.¹⁵

Brazil's emerging environmental governance orthodoxy holds proprietorship as a means to encourage stewardship, as individual owners will assure that no tragedy of the commons occurs. Powerful backers of the controversial Forest Code—which could clear the way for much more intense exploitation of the world's largest remaining tropical rainforest—include agribusiness and industrial leaders who have been the architects and beneficiaries of the neoliberal and export-oriented turn in Brazil's political economy (Wolford 2010). Their ideology is buoyed by the cadastre, which not only represents a view of individuated properties, but also materializes a theory of property as the solution to socioenvironmental problems in Amazonia. In its capacity to measure, represent, and give shape to the history of lots, the cadastre produces land as titled property. Landholders with full title, so the theory goes, can obtain formal credit and work in their own self-interest to improve their situation, while also carefully managing the environment. However, as shown in how the elites use Terra Legal, the problem is that property, once given and recognized as such, can facilitate various kinds of dispossession and subsumption. As agribusiness fuels a speculative property boom in Amazonia, Terra Legal is legalizing the illegal concentration of lands.

The land question in Amazonia presumes its own answer in a governmentality that measures land, distributes voice to landholders, and formulates progress as the shape of national history. But the ordered disposition of things creates its own lacuna, just as the new cadastral knowledge creates official ignorance around a host of territorial practices in which elites continue to accumulate advantages. Though putatively oriented toward social inclusion, Terra Legal is itself being disposed to reinforce rural inequalities. Efforts to refine property are effective, in that they create new conceptual resources and regimes of labor in which knowledge and power can circulate, but they can never smooth over the thicket of social and material relations in which property is already at work.

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Notes

1. This is the equivalent to nearly 1.6 million square miles, or half the surface area of Brazil itself, and more than the land area of India, Argentina, or Mexico. See Iterpa 2010 for more on the cancellation.
2. All names of informants are pseudonyms.
3. The Brazilian Forest Code was written and adopted in 1965, though fierce debates surround a rewriting of the code, which began in June 2011. One of its principal provisions—which has never been fully implemented—holds that proprietors in the Amazon region must hold at least 80 percent of their properties in forest or under sustainable management. Ranchers and soy interests from the *ruralista* (ruralist) parliamentary bloc have lobbied for reductions of permanent preservation areas on private lots to 50 percent or less. CAR is a national program, and is, in fact, quite similar to Terra Legal as described in this article. Created in 2012, the CAR program compels all rural proprietors to register essential information about the extent, coordinates, and activities pursued on their lands. The CAR then compiles a database for monitoring environmental conditions and managing rural extension and agricultural credit programs.
4. The Jamaxim National Forest is a controversial conservation area. It was created, along with a dozen other conservation units in Pará and Amazonas states, by presidential decree on February, 13, 2006, to mark the one-year anniversary of the assassination of the Brazilian-American nun Dorothy Stang, who advocated for forest protection and the rights of rural farmers. The Jamaxim National Forest measures 1.3 million hectares (3.2 million acres), and includes preexisting farms, ranches, and artisanal gold mines.
5. The allusion here is to Foucault's seminal work on governmentality, as developed in his lectures at the Collège de France, "Security, Population, Territory" (Foucault 2007).
6. The Brazilian federal government uses the term *Amazônia Legal* to refer to the nine northern states that compose the nation's share of the Amazon forest biome. It is a sociogeographic region, and is one of five recognized by the state.

7. Schmink and Wood 1992 and Little 2001 masterfully analyzed the political and social struggles over land occupation in Amazonia during the 1980s and 1990s. Much of the summary here is derived from their work, as well as the legal analysis of Alston et al. 1999 and Girardi 2008.
8. INCRA, an independent agency in Brazil's federal government, is dogged by perceived, and actual, corruption (see Wolford 2010 for an account of interactions between property claimants and INCRA in other regions of Brazil).
9. I have written extensively on how *grilagem* structures human-territorial relationships in southwestern Pará (Campbell 2012a, 2012b, 2015). (See Chapter 6 in Holston 2008 for a comparative case analysis in greater São Paulo.)
10. Hetherington used "cadastral fixes" (2012:137), and Raymond Craib used "fugitive landscapes" (2004: 3) to describe zones removed from the legal purview of the state.
11. This summary of TL's procedures is based on the legal analysis of Brito and Barreto (2011:40–43), along with materials available in Brazil's public record (Brazil Ministry of Agrarian Development 2012).
12. Here my work converges with recent attention on the politics of tenure regularization explored, albeit obliquely, by Wendy Wolford 2010 in her account of the Landless Workers' Movement and by James Holston 2008 in his study of regularizing the urban periphery in São Paulo.
13. Based on interviews with small landholders in August 2011, renting titles is an especially active market in Castelo de Sonhos.
14. I found at least two large-scale landholders attempting to consolidate their holdings through this subdivision scheme. At the time of this writing, a special investigation by the MPF-Santarém (Federal Public Ministry) is being undertaken to collect testimony from affected parties.
15. See Weaver 2006 for a historical summary of how private investment and government action on real estate frontiers prime the pump for speculative booms; see Oliveira 2013 for an analysis of Terra Legal from a macroeconomic perspective. Oliveira reaches similar conclusions about how the program is contributing to land concentration and social dislocation in the Amazon-Cerrado transition region.

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