



Debates in the Environmentalist Community: The Soy Moratorium and the Construction of Illegal Soybeans in the Brazilian Amazon

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Introduction

As the title implies, it used to be legal to plant soybeans in the Brazilian Amazon, as long as national environmental laws governing deforestation were followed. Given fairly low land prices in this relatively remote area of Brazil, and the world market's insatiable appetite for protein, among other reasons we detail below, soybeans have found a comfortable home in what has become one of the world's newest "bread-baskets" (Economist, 2010). The increased environmental and social costs of such rapid expansion, however, led international environmental nongovernmental organizations (NGOs) to take action against it (Howden, 2006). As a result, in 2006, the landscape of Amazon soybean production changed dramatically.

A so-called "soy moratorium" was declared, making it "illegal" to purchase any soybeans grown on deforested land in the Amazon biome after July of 2006 (ABIOVE (Brazilian Association of Vegetable Oil Industries), 2006). This declaration was not made by any court of law, not by any presidential decree. Rather, large agribusiness firms in Brazil, with substantial global corporate and non-governmental environmental organization support, declared the moratorium. With it, they pledged to govern themselves, but in effect, the moratorium made illegal what used to be perfectly legal. There was a dramatic effect on what farmers could plant, where they could plant it, and arguably the moratorium has contributed to lower deforestation rates in the Amazon. The moratorium was not merely another "new law." Its efficacy relied on a geographic information gathering and enforcement system that appears to be an example of neoliberal environmental governance that works, the kind of international market-based conservation opportunity cheered by some as leading to the end of deforestation in the Amazon basin (Nepstad, Soares et al., 2009).

The soy moratorium occurs in the midst of a lively debate in the environmentalist community about how best to conserve forests and other sensitive areas. On one hand, is the emerging group that is calling for more market-led solutions, such as the soy moratorium. On the other hand, are the groups that support a more traditional, state-led approach, centering on the creation and enforcement of protected areas and supplemented with state-led incentive programs that would dissuade people from



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moving to and clearing areas of forest. In the Amazon, these two contrasting views are well represented by the writings of Daniel Nepstad and Philip Fearnside, respectively. Both have the same ultimate goal — stopping deforestation — but they have come to endorse somewhat different strategies for achieving it.

Fearnside has long been an advocate of an approach that mixes a variety of state-led strategies:

Removing the motives for deforestation will require a stop to regularizing land claims, as well as cutting the various subsidies through which Brazilian taxpayers still contribute to the profitability of clearing. Controlling deforestation requires establishment of the rule of law throughout Amazonia, including a complete cadaster, or register, of land titles and reinforcement of command-and-control programs. Movement to the frontier must be discouraged by exercising restraint in approving infrastructure projects, especially for highways, and by creating and protecting conservation units. At the same time, economic alternatives must be created by generating employment in source areas and in alternative destinations, by supporting sustainable uses of the forest and alternative supply of national markets for products such as wood. Most fundamental is continued progress in creating mechanisms to reward the environmental services of standing forest as an alternative foundation for the economy in rural Amazonia. (Fearnside, 2008: 16)

In contrast, Nepstad trumpets the power of globalized markets to create opportunities for conservation:

Brazil has two major opportunities to end the clearing of its Amazon forest and to reduce global greenhouse gas emissions substantially. The first is its formal announcement within United Nations climate treaty negotiations in 2008 of an Amazon deforestation reduction target, which prompted Norway to commit \$1 billion if it sustains progress toward this target. The second is a widespread marketplace transition within the beef and soy industries, the main drivers of deforestation, to exclude Amazon deforesters from their supply chains. (Nepstad, Soares et al., 2009: 1350)

As is evident in these two quotations, where Fearnside sees largely state-led solutions to the problem of Amazonian deforestation, Nepstad sees market-led solutions. Even more broadly, Fearnside looks to internal (domestic) forces, while Nepstad looks to external (international) ones. The key differences between these two approaches are the enforcement mechanisms. Fearnside's approach recognizes the fundamental role of the state in the enforcement of forest policy, executable via fines and related command and control mechanisms. Alternatively, the state can orchestrate incentives in the forms of tax breaks, jobs programs, and the like. Nepstad, in contrast, sees the market as the most practical and effective enforcement mechanism. The logic is as straightforward as state enforcement via protected areas — if farmers cannot sell their products, then they will not undertake efforts to clear forests for farmland. The strategy exemplified by Fearnside's quote represents the status quo for many countries, including Brazil. The strategies endorsed by Nepstad, and identified as "major opportunities to end the clearing of [the] Amazon forest," are newer.

This chapter aims to add a level of richness to our understanding of current efforts to stop deforestation as being either state-led, or market-led. We consider the history



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of how trading soy came to be “illegal” in the eyes of the market and how market-led strategies have been able to achieve a level of enforcement that the state was never willing or able to accomplish. This history makes it clear that the soy moratorium could not be the market-led success it is if it were not first for the establishment of a very strong state-led effort, beginning over half a century earlier, to map and monitor the resources of the Amazon. Such efforts date back to the 1930 military-backed installation of Getúlio Vargas to the Brazilian presidency and the eventual establishment of the *Estado Novo*, during which Vargas built strong national state institutions and information gathering systems for the very first time. These institutions were essential in building the knowledge base, and the technology to develop, the resources of the Amazon in order to build the new national state. Subsequent military dictatorships during the Cold War further consolidated this trend. By the time democracy and global market forces were in full play at the start of the twenty-first century, hybrid state-market policies finally made it possible to render certain activities “illegal,” backed by enforcement powers that no purely state-led or purely market-led strategy could muster alone.

This chapter views the history of the making of illegal soy as going through three main periods, roughly following Brown and Purcell’s (2005) analysis of the changing scales of control over decision-making in Amazonian development. The main difference in the writing of this history is that we are focused on how the making of national state territory played an essential role in building the institutions and knowledge required to make new laws and enforce them. This chapter retells this history, albeit briefly and necessarily glossing over much detail, in order to provide some essential context for the soy moratorium as a governance strategy. It is also important to establish the view taken in this chapter that laws, in and of themselves, have territorial properties — some action is allowed here, but not there — and thus they are an important expression of human territoriality (Sack 1986). Thus, our understanding is that new territories can lead to new laws and vice versa, and in fact the establishment of law and territory go hand in hand and cannot easily be separated. In short, the establishment of any territory requires some knowledge of what is to be delimited into a territory along with some justification. Enforcing territorial limits, in turn, requires further information and surveillance, which can aid in an even greater detailed delimitation of territory. Within each period of the making of illegal soy, this chapter focuses on what political economic interests were in control of the Amazon, the institutions and laws that governed land use, and the information required for the enforcement of the law.

President Getúlio Vargas, the Military, and the Making of National State Territory (1930–1964)

Getúlio Vargas came into Brazil’s presidency, installed by military force, after a long period of extremely decentralized government known as the Old Republic (1890–1930). During this prior period, regional elites in the most economically vibrant region of Brazil (coffee barons in the southeast) dominated national-level politics, setting policies regarding trade and taxes that benefitted themselves, regardless of the needs of other regions and economies (Weinstein, 1983; Prado Júnior, 1987). This extreme regionalism, also known as “the politics of the states,” allowed regional elites elsewhere, such as rubber barons in the Amazon, to control their own governance





and the benefits of their own trade, without interference from the national polity (Burns, 1993: 266). Vargas's rise to power is most-often understood as a reaction to this extreme decentralized political system. Once coffee barons in the southeast began to lose their economic power, due to depressed coffee markets, other emerging interests in Brazil saw an opening to gain power under the belief that the regional interests were too selfish (Weinstein, 1983). Backed by industrialists, growing middle and intellectual classes, and idealistic military officers, Vargas rose to power in 1930 with a project to build an authoritarian nationalist state based on the full incorporation of national state territory, people and resources, for the good of Brazil (Wirth, 1970; Bak 1983; Bak, 1985). This national project involved dismissal of regional and municipal legislative bodies, the development of national-level policies and the formation of national political parties. The year 1937 marked the strongest-ever nationalist and authoritarian nature of Vargas's project when he cancelled presidential elections and dismissed congress, declaring his establishment of a new government called the *Estado Novo* (Skidmore and Smith, 2001).

With respect to the Amazon, Vargas specifically called for Brazilian national civilization to spread westward into the region as part of an effort to bring the full Brazilian territory into the political and economic life of the nation. This "March to the West," was built on the view that Amazonia was an unpopulated, vast region with the potential for agricultural and natural resource development (Hecht and Cockburn, 1990). The view resonated strongly with military concerns that neighboring countries and communist insurgencies could wrest control of the region from national control (Vargas, 1938–1941; Silva, 1967). In short, Vargas's project, regarding the Amazon, was to populate it, control it, and harness it as part of building a strong national state. Vargas came in and out of power through this period until committing suicide in 1954. The military, deeply involved in Brazilian politics throughout the period, continued to build on many of the nationalist efforts Vargas originally put in place.

Vargas and the Brazilian military set the stage for a strong national state beginning in the 1930s with key institutions and laws that were consistent with Vargas's project. In 1931, Brazil's forest code was enacted as part of a suite of codes that also regulated scientific expeditions, water use, mines, and hunting and fishing (Dean, 1995). In the code, Vargas's "denial of liberalism" and his effort to build Brazil "under the banner of a modernizing and technocratic nationalism," is clear (Dean, 1995: 261). The code abolishes the absolute right of property, and it set rules regarding tree cutting. Trees must be preserved along waterways to protect watersheds, and when they house rare species. Land owners could not cut more than three-quarters of forested land. In this first iteration, the forest code applied to all of Brazil, for the Amazon had yet to be officially distinguished in Brazilian law (Browder and Godfrey, 1997: 256). This soon began to change as the Brazilian military and other national institutions increasingly took an interest in the region, recognizing its potential importance for national defense and economic development. In 1946, the newly ratified constitution called for a comprehensive long-term plan for the integration and development of the Amazon. In 1953, the Superintendency for the Economic Valorization of the Amazon (SPVEA or *Superintendência do Plano de Valorização Econômica da Amazônia*) was established to develop and carry out such a plan (Hecht and Cockburn, 1990). One of the Superintendency's first acts was to legally define the Amazon region (the Legal Amazon or *Amazônia Legal*) as a form of bio-administrative region. The boundary included the states of Mato Grosso, Goiás, and western portions of Maranhão, thus





Figure 8.1 Map of Brazil showing the humid forest biome, savanna, the Legal Amazon, and the municipality of Vilhena, Rondonia.

humid tropical forest and significant areas of savanna, or cerrado, were part of the same territory (Figure 8.1) (Hecht and Cockburn, 1990; SUDAM, 2011).

One of the key institutions for all these developments during the Vargas years was The Brazilian Geography and Statistics Institute (IBGE or *Instituto Brasileiro de Geografia e Estatística*), which was a 1938, *Estado Novo* renaming of an earlier national statistics institute that Vargas had established soon after taking power in 1930 (Almeida, 2003). Most pertinent to our discussion is the Institute's purpose to amass knowledge and statistics about Brazil's socio-economy and its natural resources for the purposes of providing the information needed for state-led development. It was the Institute's business to help organize the nation's territory, from the national to the local level, and to map the extent of Brazilian territory to aid in government plans to incorporate greater and greater amounts of Brazilian space into the national project. According to Eli Penha (1993), the Institute was an essential part of the government's centralized knowledge gathering activities that helped organize Brazilian territory for nation-building, national policies, and to take the immensity of Brazilian territory and break it up into political-geographic-administrative units. Roberto Almeida (1994) emphasizes the involvement of the IBGE in providing the information needed for the development of major state enterprises under the discourse of national security: from the *Companhia Vale do Rio Doce* (major mining firm) in 1942 to *Petrobrás* (Brazil's National Petroleum Company) in 1952, none of it could have taken place without



the mechanisms for territorial control that the IBGE helped put in place. This included systematic knowledge of the physical aspects of the surface and subsurface, infrastructure (existing and planned), defining Brazil's regions, socio-economic understanding of those regions, and mapping.

Military Dictatorship, Development, and the Decade of Destruction (1964–1984)

After Vargas's death in 1954, the military remained deeply involved in Brazilian politics until a coup in 1964 when it took definitive control of the country, opened Brazil's borders to greater international investment, and established a development strategy based on rapid industrialization and greater incorporation of the Amazon into the nation's political and economic life (Stepan, 1977). Some of the main steps to achieve this included the funneling of additional capital to the region; a new forest code was established, and a National Integration Project (PIN or *Projeto de Integração Nacional*) initiated a massive effort to survey the region and its resources and to populate it. These efforts helped further set the territorial limits of investment geared toward Amazonian development, and out of the hands of insurgents who would disrupt the national project. In the process, however, the efforts also began to define the converse of development, which was the requirement that landholders set aside a certain portion of their land for the purpose of conservation.

Based on the Brazilian Geography and Statistics Institute's identification of Brazil's regions, the military established new regional development "superintendencies" to funnel capital specifically to each region. The Amazon's unit, formed in 1966, was called the Superintendency of Amazonian Development (SUDAM or *Superintendência Desenvolvimento da Amazônia*). Soon after taking power, the military established a new forest code. The Forest Code first put into place by the Vargas Administration had gone largely unenforced (Dean, 1995). The new code was enacted in 1965, and its most important innovation was a differential restriction on deforestation, based on whether land is in or outside of a particular area of the country, presumably where humid tropical forests predominate. Recall that the Legal Amazon was first created in 1953, but the 1965 code does not name it specifically. Rather, the key article pertaining to deforestation and conservation, Article 44, states that in the "North region and the northern part of the Center-West region," only up to 50 percent of the tree cover could be removed from a property:

Art. 44. Na região Norte e na parte Norte da região Centro-Oeste enquanto não for estabelecido o decreto de que trata o artigo 15, a exploração a corte raso só é permitida desde que permaneça com cobertura arbórea, pelo menos 50% da área de cada propriedade. (Lei nº 4771, de 15 de setembro de 1965)

Though ostensibly responding to increasing demands for forest conservation, an underlying purpose of the 1965 Forest Code was to exert oversight and control over large landowners, who were seen by the military as potentially problematic due to their opposition to certain agrarian reforms (Dean, 1995). The Forest Code as written in 1965, though subsequently modified, remains the basic template for forest governance in Brazil up to the present (2011).





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With the boundaries of Brazil's Amazon region taking shape administratively and with respect to the new forest code, the military simultaneously initiated an aerial survey of the vast territory of the Amazon, mapping relief, vegetation, geology, soils, and mineral deposits, echoing Vargas's concerns about knowledge of and control over the Amazon as questions of national security. The roots of this effort go to an agency called the National Commission of Space Activities (CNAE or *Comissão Nacional de Atividades Espaciais*), founded in 1963 (INPE, 2011). It was then that Commission personnel travelled to NASA for training in the use of side-looking airborne radar (SLAR) aboard an airplane to create a 1:1,000,000 survey of the nation's natural resources (Oliveira, 1999). This link between NASA and the Commission to survey the resources of such a huge land mass potentially signals that not only was it a project for Brazil's military government to build its version of the national state, but it also served the US's hemispheric interest in ensuring this vast region did not become a communist stronghold during the Cold War. Surveillance of the Amazon on an annual basis also became possible with new satellite remote sensing technologies. In 1972, NASA launched the first of its Landsat program satellites that transmitted imagery back to earth, allowing for the tracking of Amazon deforestation from year-to-year. One year earlier, the military dissolved the old National Commission of Space Activities and formed the present day National Institute of Space Research (INPE or *Instituto Nacional de Pesquisas Espaciais*), a key institution that has over the years produced official deforestation statistics and maps from interpretation of satellite imagery, primarily from NASA satellites that were first launched in the early 1970s.

This Radar Amazonia project (RADAM or *Radar na Amazônia*) became operational in 1970 as part of the larger National Integration Project (PIN) (Foresta, 1991). The project was funded heavily by international capital, and it was followed by a series of development programs funded in part by investments from the World Bank. The project, and the numerous others that followed, allowed for the construction of new major highways, and improvements to older ones, vastly improving connections between the Amazon and the rest of Brazil. They also allowed for colonization of the region by Brazil's poor, which were, until then, largely concentrated in Brazil's south, southeast, and northeast. Tens of thousands of families moved into the Amazon to take part in the private and state-led colonization projects along the new highways beginning in the 1970s. PIN and numerous regional subprojects in later years succeeded in infrastructure improvements and the settling of a whole new generation of Brazilians on the Amazon frontier, helping lead to an Amazon region today that is mostly urban (Browder and Godfrey, 1997). They failed, however, in mitigating the social and environmental costs of this mass movement of people. The so-called "Decade of Destruction" ensued across the Amazon, and by the early 1980s, the Brazilian government and its financiers were accused by Brazilian citizens and international environmental organizations alike, of a number of transgressions including: failing to protect indigenous populations from encroachment by settlers, high deforestation rates, poor delivery of government services to settler populations, and high rates of rural violence associated with contested land tenure on the frontier (Cowell, 1990; Millikan, 1992; Rich, 1994).

In sum, this period was marked by a very intense focus on the Amazon as a major component of a national development strategy, requiring vast amounts of information, vast investments in infrastructure, mass movement of people, and subsequent impacts on people and the environment. Brazil's national, state-led project, though



dependent on a huge influx of international and private capital, was about to be challenged by its own people, as the country entered a period of democratization, and by international environmental and human rights groups.

Democracy, Market-led Conservation, and the Soy Moratorium (1985–present)

With democratization spreading in Brazil and around the world in the 1980s and early 1990s, the world entered an era recognized for the so-called weakening of state institutions. Neo-liberalism began to take hold as a dominant economic discourse and practice that shaped state-society relations and had its own impacts on, and opportunities for, environmental conservation (Nepstad, McGrath et al., 2002; Nepstad, Stickler et al., 2006; Brannstrom, 2009). The year 1985 marked an important transition in Brazil, with the presidency of José Sarney, the first civilian president since 1964. He came into office in the middle of the “Decade of Destruction,” when world attention on the human suffering and massive deforestation occurring in the Amazon reached its highest level. The push to develop the Amazon in a state-led, military fashion came under attack, often fueled by case studies of abuses and also by the new satellite images from space showing deforestation. (The imagery was interpreted, analyzed, and reported annually by Brazil’s own National Space Research Institute, which tracked deforestation across the entire Legal Amazon (Câmara, Valeriano et al., 2006)). International human rights and environmental NGOs exerted tremendous pressure on Brazil and the main financiers of its development (multi-lateral institutions like the World Bank) to change business-as-usual development practice. This pressure is exemplified well in the international NGO campaign against the World Bank and the Brazilian government for their controversial agricultural development projects in the state of Rondonia (Brown, 2001). As a result of this pressure, the World Bank redesigned the approval process for its loans for development in sensitive areas like the Amazon, and governments had to become more sensitive to citizen concerns about protecting human rights and the environment in development.

The Forest Code underwent minor revisions in 1989, but the rule requiring the maintenance of 50 percent of forest cover on landholdings remained in force at the time. In 2001, under increasing pressure from the environmentalist community, the Brazilian government made significant changes to the details of the Code through presidential decree, or what is known as a *medida provisória*. The Forest Code is now referred to informally as the “*Medida Provisória*,” or simply “2166,” the number of the decree. The important changes to the law decreed in the *Medida Provisória* include: the definition of “areas for permanent preservation” (APP or *Área de Preservação Permanente*), the formal definition of “legal reserve” (which had been included in the 1989 revision), and most importantly, changes to the legal limits of deforestation on private properties in the Legal Amazon. The “APP” is defined as areas that can never be deforested, with very few exceptions, in order to preserve features such as hydrological resources, geological stability, and critical habitats, among others. The “legal reserve” is defined as the percentage of the property that must be maintained under forest cover, not including any APP. The *Medida Provisória* changed the percentages of properties that must be maintained in legal reserve to 80 percent in areas of humid forest, and 35 percent in areas of cerrado, or savanna. On





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properties that contain both humid forest and savanna vegetation, the percentages of legal reserve are to be assigned proportionally. The legal reserve is just 20 percent in the rest of the country. These new percentages are laid out in the Forest Code's revised article 16 (Medida Provisória^o 2166-67, de 24 de agosto de 2001).

These changes in the forest code are extremely important; the code went beyond being specific to the Legal Amazon (one with easily identified boundaries). It set the rules for the percentage of native vegetation required to be maintained in legal reserve according to what type of vegetation existed on landholdings, savanna vs. humid forest *within* the Legal Amazon, a distinction that is not always easy to define, as discussed below. By setting the limit on deforestation to 20 percent of landholdings in humid forest, and up to 65 percent removal of vegetation in areas of savanna, the code explicitly put a greater conservation value on humid forest than savanna, in effect codifying the notion of the savanna as a "sacrifice zone" in Brazil's attempts to develop its vast Amazonian interior (Brannstrom, 2009).

Deforestation for the purposes of agricultural and pasture development continued apace during the 1990s and 2000s, closely tracked by INPE (Câmara, Valeriano et al., 2006). Through this period, the Brazilian government showed itself incapable or unwilling to halt deforestation in command and control fashion, despite the wealth of geographically precise information it had at its disposal to locate offenders of Brazil's forest code, and in spite of some well publicized efforts now and then at the state and federal level to crack down (Fearnside, 2003). Consistent with neo-liberal discourse and practice, there were more and more calls for market-led conservation efforts. This can be seen in arguments for "productive conservation," in which there is a push to increase market demand for products that require the maintenance of forest cover (so-called non-timber forest products), which experienced varying degrees of success and problems (Anderson, 1990; Browder, 1990; Hall, 1997; Brown, 2001).

In spite of these efforts, deforestation continued unabated, linked heavily to increasing market demand for beef, other livestock, and soybeans, produced within the Legal Amazon. By the mid to late-1990s, the state of Mato Grosso had become the center for the cultivation of soybeans on large landholdings and with some of the most modern agricultural technology available in the world (Carvalho, 1999; Fearnside, 2001). Used commonly in vegetable oil, as feed for chickens and hogs, and exported to Europe and China, soy had a major role in building economic and political power in a region that not long before was a backwater. This is best exemplified by the rise of the largest soybean producer in the world, Blairo Maggi, who eventually became the governor of the state of Mato Grosso, and who arguably helped deliver agri-business support for the re-election of President Lula for his second term in 2006 (Economist, 2006).

While researchers in Brazil sounded the warning that market-demand for Amazonian soy was now *causing* deforestation, the international non-governmental organization, Greenpeace, was preparing its case that the same market could be used to stop deforestation, if global consumers only knew the true environmental and human costs of soy production in the Amazon. Greenpeace made the case through two important actions. One was the release of a document entitled, "Eating the Amazon," in April of 2006, which made the detailed case of the manner in which the international consumption of chicken, hogs, and soy was linked to deforestation in the Amazon. The other action was much more direct, in classic Greenpeace style. In May of 2006 at the soybean port of Santarém, Pará on the Amazon River, activists





arrived in the ship, “Arctic Sunrise,” unfurled spectacular banners, and temporarily blockaded the port. Greenpeace targeted the port for the action because it believed the port, financed and built by the American company, Cargill, was illegal (Greenpeace International, 2006). Some violent altercations ensued between port facility employees and the protestors, all helping the action attract international news interest (Howden, 2006). These actions were successful in getting major soy purchasers and processors, Brazil’s vegetable oil industry association, ABIOVE (*Associação Brasileira das Indústrias de Óleos Vegetais*) and Brazil’s cereal exporters association, ANEC (*Associação Nacional dos Exportadores de Cereais*), to declare a moratorium on purchases of soy originating from areas deforested in the “Amazon biome” after July 24, 2006 (ABIOVE [Brazilian Association of Vegetable Oil Industries], 2006). All monitoring reports since the moratorium was established show convincingly that only minuscule percentages of lands deforested after 2006 contain soy operations.

This chapter considers the major steps required for the moratorium to have succeeded, steps that a market alone was unlikely to take — steps that required very strong state-led institutions and information building over decades for the purposes of making a strong national entity. While we emphasize state-led phenomena, we are not saying that market-led phenomena were not important. Market-led dynamics were essential, *along with* the state-led ones. With a relatively weakened state during this neo-liberal period, space was opened for the market and for international NGOs to pull information and economic levers to obtain compliance with moratorium rules. At the same time, however, the moratorium succeeded because of decades of successive governments, beginning with that of President Vargas, which built the sense that the Amazon biome was important to protect; a vast region like this came to be identified as a territory in need of planning, investment, development, and of monitoring and surveillance. In addition, the institutions and technology required to enforce the moratorium, as will be shown, have their roots in state-led nation building, much less in market building.

For the moratorium to work, it had to have some type of institutional organization. Operating first outside of any government agency, and with no official government involvement whatsoever, the moratorium formed a Soybean Working Group, comprised of industry/business interests and several international and local NGOs, including the World Wildlife Fund, The Nature Conservancy, The Institute for Amazonian Research, Conservation International, Greenpeace, and the Amazonia Defense Front, based in Santarém, Pará, the site of the disputed Cargill port facility (ABIOVE [Brazilian Association of Vegetable Oil Industries], 2006a; ABIOVE [Brazilian Association of Vegetable Oil Industries], 2006b). The Working Group divided into three subgroups: a farmer education campaign group, a public relations group designed to build greater international business and NGO support and to begin developing federal government support, and a group to develop a monitoring strategy so that the moratorium could be enforced. As evidence of the lack of initial government involvement in the moratorium, the federal government did not become an official participant in the moratorium until June 2008 (ABIOVE [Brazilian Association of Vegetable Oil Industries], 2008).

Like any law, the moratorium had to define its territorial focus — what was allowed, not allowed, and where. The “Amazon biome” was the region chosen as the geographic target of the moratorium, and for this, the moratorium relied on the distinction



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between the humid tropical forest biome of more equatorial Amazonia and the drier tropical forest and savanna biomes located to the south (Figure 8.1). Recall that this distinction was first made and mapped with the military's Radar Amazon (RADAM) project of the 1970s, and that President Vargas's Brazilian Geographic and Statistics Institute of the 1930s was charged with keeping this information for planning purposes. Also, the distinction between these two major biomes within the Legal Amazon was first made in the Forest Code in 2001. A much greater percentage of forest could be removed on lands identified as a type of savanna than humid forest. The moratorium, in effect, could rely on these definitions and the fact that a line dividing the two biomes had already been made decades earlier. With the territorial focus defined, the Working Group had to determine what areas were deforested within the Amazon Biome each year and then verifying each year whether soy had been planted there. For this, the moratorium relied on the National Institute for Space Research's annual mapping of deforested areas in the Amazon, and the hiring of a third-party research firm to fly over the identified deforested areas to look for soybeans.¹ In July 2010 the soy moratorium was renewed for the fourth time, and in every monitoring report produced since the beginning, only a negligible percent of area deforested in the Amazon can be attributed to the planting of soybeans. In 2009, Carlos Minc, then-Minister of the Environment, showed his enthusiasm for the moratorium in an announcement that soybean agriculture no longer factored into deforestation (GLOBALSAT and ABIOVE [Brazilian Association of Vegetable Oil Industries], 2008 and 2009; Leão, 2009; Lovatelli, 2009).

Conclusions and a Critique of the "Success" of the Soy Moratorium

The preceding paragraphs placed the soy moratorium into its historical context, providing a much richer understanding of how soybeans came to be "illegal" in the Amazon. The moratorium, as an attempt to stop deforestation around the production of a valuable domestic and export commodity, came at a time when a democratized Brazilian state was bypassed by powerful international agribusiness and environmental non-governmental organizations to force farmers to change their land-use practices. In order for the moratorium to be a success, it required the institutions of a strong national state dating back to the 1930s, and the information these institutions produced and held for government planning. Thus, neither Fearnside's call for strong state-led command and control to stop deforestation, nor Nepstad's faith in global markets to work in favor of conservation are based on a historical, political-economic and institutional understanding of Brazil.

Now considering in more detail the feat that the moratorium achieved, Brazil had never systematically enforced its forest code since it was first formally written in the 1930s. On the one hand, how could Brazil realistically enforce it? The Amazon basin itself is of continental size, and even though Brazil had the information it needed to identify offenders, government officials were loath to make the political and economic investment needed to enforce it. In fact, from the Vargas Administration through the military years, forest code enforcement seemed to be merely a lever that federal government officials could pull at will in order to attack any potential regional land-holding opponents of the strong national state project. This is the point at which the neoliberal market has made a major contribution to stopping deforestation. It is a force



with a reach so wide that it made it possible to enforce an even more stringent rule than the forest code itself. The moratorium, in effect, made it illegal to do something that was perfectly legal under Brazilian law. It was legal to plant soybeans on deforested land, as long as farmers remained in compliance with the forest code and its restrictions on total area cleared. It is very unlikely that the federal government ever would have passed such a restriction on land use. The enforcement appears to have worked, because farmers received visits by the soy purchasers themselves, signing documents they would not try to sell soybeans from recently deforested land, and that if caught, they would lose their only outlet to the market. They would also lose one of the most important sources of credit for seeds and fertilizers, as the soy purchasers themselves allowed farmers to borrow on the value of the following year's production (Brown, personal communication with government official). Both the purchasers and the farmers have calculated up to now that it would be too costly not to follow the moratorium directives. But again, it is difficult to imagine that a market would have created the kinds of institutions and information the moratorium required. Instead, the moratorium appears to have taken advantage of institutions and information that were first created to build the Brazilian national state, an entirely different purpose.

With the richer historical understanding of the success of the moratorium, we now turn to a critique of the so-called "success" of the moratorium. Despite the positive reports that soy is no longer a factor in deforestation, we do not see the moratorium as a sustainable long-term solution to deforestation in the Amazon. Much of this chapter's critique is based on the fact that the moratorium is very commodity- and national biome-centric. This chapter concludes by considering each of these limitations in turn. By focusing in on a single commodity, soy, the moratorium makes deforestation out to be the product of a very simple agricultural activity, masking the complexity of known cropping practices in Amazonian commercial agriculture. It is known that soybean is not always the first crop planted after deforesting a plot of land. Upland rice is often planted as a first crop as a step in the process of preparing the soil for soybean and other crops (Brown, Koeppel et al., 2005). One explanation for planting rice first is that rice is harvested higher off the ground, saving harvester equipment from damage by any remaining pieces of wood and stumps in the field. The success of the moratorium thus could be simply because farmers normally do not plant soy anyway on recently deforested land.

The moratorium thus does not stop deforestation for other crops or activities, and pasture expansion is one of these. The market for Amazonian beef is rising, as is demand for cattle hides used in the shoe industry, hence the need for more pastureland. In recognition of this, it is not surprising that Greenpeace and others have spearheaded an effort to develop a moratorium on the purchase of cattle raised on recently deforested land (Greenpeace International, 2009). It is beyond the scope of this chapter to provide an evaluation of that effort, but we mention it to make the point that somewhere along the line, such commodity-centric moratoria, one after the other, run the risk of becoming old and stale, leading to apathy among consumers and a sense among agricultural interests that there could eventually be a return to business-as-usual without fear of any consumer or market backlash. The need to govern the agricultural system as a whole, involving the complex relationships between land clearing, livestock and crop production, is required for long-term sustainability of land-use rules and laws.

Furthermore, the moratorium can be critiqued for its national, biome-centric



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approach. It makes concerns about global commodity production and environmental degradation out to be something that is particularly Brazilian and found only in Brazil's humid tropical biome. We wonder what effect the moratorium has had on the movement of today's globalized agricultural operations. It is possible that the moratorium has simply "squeezed" operations to nearby Bolivia or south to Paraguay (Kaimowitz and Smith, 2001). Natural vegetation is being cleared, potentially for soy production, in these countries that do not have the kinds of institutions and information required for a similar moratorium to be put in place. Moreover, by focusing on humid tropical forests, it further constructs dry forests and the vast savannas of South America to be sacrifice zones in the battle to achieve some balance between development and environmental conservation (Brannstrom, 2009). We recognize that in any law or rule, a territory must be identified where the rule is in force. The Amazon biome (humid tropical forest) was chosen for the moratorium, leaving the savanna outside the zone of protection. While maps show clear divisions between the two biomes, these are ultimately artificial lines. This is because at the borders of major natural vegetation forms like this are areas of transition, ecotones, or as called in Brazilian vegetation studies, areas of "ecological tension." It is unclear in the monitoring methodology published thus far how farmers who find themselves along this area of transition are treated in the moratorium. The map used to separate the Amazon biome (humid forest) from the savanna is drawn at a scale of 1:1.5 million, which leaves a very large area at the margin where confusion may prevail about whether one is in or outside the enforcement zone.

All in all, a biome-centric approach is extremely difficult to enforce without some confusion. This is what we know from our fieldwork in the municipality of Vilhena, Rondonia, which is an area near the border between savanna and moist tropical forest (Figure 8.1). Recall that in the Legal Amazon, the Forest Code, currently the *Medida Provisória* 2166, distinguishes only between "forest" and "savanna". Under the *Medida Provisória*, only 20 percent of forested properties may be cleared, while 70 percent of savanna areas may be cleared. In order to clear natural vegetation on one's property, one must obtain a license, based on a survey that declares what types of vegetation are present, and therefore how much land may be cleared, issued by the proper authority. In theory, on properties with both forest and savanna, licenses would be granted for clearing proportional to each vegetation type present. The subjectivity of the process becomes evident in municipalities like Vilhena at the ecotone between savanna and humid tropical forest. In these areas, clear distinctions between what is forest and what is savanna are not evident, and perhaps not possible. Within the ecotone, some areas are clearly savanna, some are clearly forest, and between these exists an entire spectrum of mixed or transitional types. Given the binary classification system under the Forest Code, choosing to classify a transitional area as either forest or savanna can depend largely on one's political economic interests and motivations.²

In Vilhena, the authority to grant licenses originally lay with the *Instituto Brasileiro do Meio Ambiente* (IBAMA), the federal environmental agency. Officials at the regional IBAMA office in Vilhena tended to classify mixed areas with trees as forest, thereby maximizing the amount of land under conservation. In the early 2000s, the authority to grant licenses passed to the state-level environmental agency, the *Secretaria de Desenvolvimento Ambiental* (SEDAM), or the Secretariat of Environmental Development. Because the Rondonia state government viewed agricultural





development in the state as a big economic opportunity, SEDAM officials tended to classify transitional areas, even ones with tall trees, as savanna, much to the delight of farmers (Koeppel, 2005: 110–112). Farmers and landowners also informally tend to identify the vegetation in the region as mostly or all savanna. They do, however, distinguish among a variety of types of savanna, including *campo aberto*, which is essentially grassland; standard savanna; and *cerradão*, or “big savanna.” *Cerradão* comprises most transitional types and is the most contentious area for classification. *Cerradão* is characterized by relatively tall but skinny trees and still significant underbrush (Koeppel, 2005: 112). In the end, such confusion may open the door all along the humid forest/savanna transition zone for farmers, soy purchasers, and government officials to resolve disputes informally through some form of clientelism.

To conclude, the soy moratorium in the Brazilian Amazon, and other similar efforts, are often praised as a sign that globalized markets can have positive conservation outcomes. We should be very careful not to reduce the apparent success of these initiatives solely to the market, ignoring the geo-political and historical, state-led dynamics that may have had a major role, as in Brazil, in making them possible in the first place. If we are not careful, we run the risk of attempting to apply moratorium-like efforts in areas that are entirely unprepared or unsuitable for anything like the soy moratorium to function. One thing we must do is shy away from extreme positions calling only for state-led or market-led intervention. The history of the soy moratorium shows that it is neither; one could not have achieved results without the other.

Notes

- 1 There is clear collaboration between the National Institute for Space Research and the Brazilian Vegetable Oil Industry Association to develop more sophisticated methods for detecting soybean cropping in deforested areas, as evidenced in a recent journal publication (Rudorff et al., 2011). This is an interesting development of the Institute’s geographic focus of land change research *vis-à-vis* the Legal Amazon. Normally, the focus has always been on tracking deforestation within the humid forest biome. The soy moratorium appears to have created an interest and need to track land-use practices after deforestation as well. Such a shift has begun to incentivize greater contact and collaboration between the Institute and Brazil’s federal agriculture research agency, EMBRAPA (Brown, personal communication with EMBRAPA official).
- 2 The *Medida Provisória* has been heavily criticized by environmentalists and farmers alike. Environmentalists lament that the law is often either unenforced or ignored. Given the scale of the Amazon and the expansion activities taking place there, the Brazilian federal government lacks the resources to enforce the law effectively. Federal versus state jurisdiction over enforcement has also been in dispute. In some cases where the law is enforced, large land owners may simply deforest however much they like, pay the requisite fine, and view it as a mere business expense (Koeppel, 2005). Many farmers, on the other hand, find the law too restrictive and suggest that conservation should not be carried out on a property-level basis.

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