Working paper



6th International Conference of the BRICS Initiative for Critical Agrarian Studies

The Rural Environmental Registry (CAR) and land grabbing strategies in the Brazilian Amazon

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October/2018



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Published by: BRICS Initiative for Critical Agrarian Studies (BICAS)

in collaboration with:

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Abstract

In 2012 the Brazilian government approved a new Forest Code to regulate land use throughout the country. One of the main measures of the new law was creation of a Rural Environmental Registry (CAR in Portuguese) to which all rural properties must adhere. CAR consists of a system that verifies the environmental regularity of properties, including identification of environmental liabilities after the year 2008. By 2018, about 5,200,000 properties were registered in the CAR. CAR has great potential to contribute to reduction in deforestation and decrease of land grabbing on public lands in the Brazilian Amazon. However, in situations where land tenure governance is weak, atypical, irregular uses of the registry have been observed, contributing to land grabbing and illegal exploitation of natural resources. These atypical uses of CAR are strictly related to the dynamics of expansion of the agricultural frontier in the Amazon and point to vectors of pressure on the lands of traditional and indigenous peoples and communities in the region. This takes place in a context of political hegemony of agribusiness at the state and federal level. The strong lobby of the Parliamentary Agribusiness Front (FPA) in defense of corporate interests in the sector in the National Congress and pressure exerted by this block over the federal administration are part of this dynamic. This paper analyzes official data of CAR implementation in southeastern Amazonas state, a critical area in terms of deforestation. This region is also the site of irregular land occupation and illegal natural resource exploitation, as well as territorial conflict and rural violence.

By crossing different official databases (Prodes, Sigef and others) to CAR, the analysis identified two atypical uses of CAR as part of land grabbing strategies. First is the occurrence of "super-registries". Considering that CAR registration is self-declaratory, it is possible for private agents to manifest interest in vast extensions of public land without valid property titles. These "super-registries" have become administrative facts that can support requests for private use of public areas. Second is overlapping of registered areas. Spatial data from CAR show that many areas declared by different private agents overlap. Some of those registries also overlap traditional community and family farmer lands. All of these atypical uses of CAR have been shown to lead to conflicts and disputes over land tenure in the Amazon. They also indicate renewal of land grabbing strategies that intend to incorporate the registry as an instrument to legitimize illegal activities. On the other hand, family farmers, traditional communities and indigenous people have had great difficulty accessing CAR and adopting it as an instrument to defend their territorial rights.

Keywords

New Forest Code - CAR - land grabbing - agricultural frontier - Amazon

Acronyms

APP Permanent Protected Areas
CAR Rural Environmental Registry

CAR- Rural Environmental Registry for Territories of Traditional

PCT Peoples and Communities

CF Forest Code

CNPCT National Commission for Development of Traditional Peoples and

Communities

CPI Parliamentary Inquiry Commission FAO Food and Alimentation Organization

FMP Forest Management Plan

FPA Parliamentary Agribusiness Front

INCRA National Institute for Colonization and Agrarian Reform

MMA Environment Ministry

MPF
 NGO
 PAE
 PEC
 Federal Prosecutor's Office
 Non-governmental Organization
 Agro-extractive Settlement Project
 Constitutional Amendment Proposal

RL Legal Reserve Areas

SEDAM State Secretariat for Environmental Development

SEMA State Secretariat of Environment

SFB Brazilian Forest Service

SICAR National Rural Environmental Registry System

SPU Federal Property Management Office

TAUS Term of Authorized Use

I. Introduction

In 2012 the Brazilian Congress approved a new Forest Code to regulate the use of land throughout the country. Construction of the new law generated intense public debate in years building up to its approval. Social movements, NGOs and research institutions worked intensely to influence formulation of the law, aiming at reverting the historic trend of increased deforestation and environmental degradation.

Reformulation of the Forest Code took place in a context of profound political and institutional transformations in Brazil. Many assumptions of the Federal Constitution itself of 1988 were being systematically revised in the legislative sphere to respond to corporate interests of the economic elite and those of agribusiness in particular.

Starting mainly in 2010, Constitutional Amendment Proposals (PEC) became frequent in the National Congress involving changes not only to the legal framework but also to the political pact itself that made re-democratization of the country possible after the civil-military dictatorship (1964-1985).

In this context of profound crisis and political instability, Forest Code reform demonstrated the supremacy of agribusiness in terms of parliamentary representation, capacity to drive the agenda and to influence decisions. The text of the new law was strongly influenced by action of the Parliamentary Agribusiness Front (FPA).

Known in Brazil as the "rural caucus", the FPA is a powerful political block made up of 207 Federal Deputies aligned with agribusiness sector interests. With approximately 40% of the seats in the lower house, this block has a structured agenda with very clear guidelines. In recent years the rural caucus has directed strong attacks against the rights of indigenous peoples, traditional populations and afro-descendent communities, groups seen as obstacles to agribusiness expansion and to economic development.

The rural caucus (FPA) exerts strong pressure on the federal administration, aiming at making environmental legislation more flexible, weakening command and control mechanisms, reducing protected areas and intensifying the use of agricultural chemicals, among others. The block also played an important role in the crisis that led to impeachment of President Dilma Rouseff in 2016 and in the buildup of political polarization that the country has encountered since at least 2013.

During reformulation of the Forest Code, the rural caucus defended one of the most controversial proposals for the new law: amnesty for landowners who practiced illegal deforestation before 2008. In exchange for amnesty for these landowners, proponents of the new Forest Code agreed to create a system to discipline and regulate land tenure and use throughout the national territory. As such, the principal measure of the new Forest Code became creation of the Rural Environmental Registry (CAR in Portuguese) at the federal level, and to which all rural properties in Brazil must adhere.

CAR is part of a geo-referenced information system on land use at the scale of rural properties (SICAR). By way of this system it is possible to verify environmental compliance of properties according to parameters established by the Forest Code, including identification of illegal land use after 2008.

In each individual CAR, deforested areas, Legal Reserve (RL) areas, Permanent Protected Areas (APP), restricted use areas and consolidated agricultural use areas must be registered. By 2018, approximately 5,200,000 properties were registered with SICAR. The Brazilian Forest Service (SFB), an agency connected to the Environment Ministry (MMA), is in charge of administration of the SICAR system.

The environmental registry system presupposes the existence of a national bureaucracy capable of analyzing and validating individual registries and managing the data base set in a strategic manner for controlling deforestation. It is also a premise of the system that there is institutional and political coordination between the Environment Ministry (MMA) and environmental agencies in each state.

As a tool for environmental management, CAR holds great potential to contribute to reduction of deforestation in the Amazon. If well processed and analyzed, information available in SICAR can feed planning and decision-making processes on land use at a local, state and national level.

But in practice, implementation of the registry has encountered structural obstacles such as weak land tenure governance in many regions of the country and in the Amazon in particular. The enormous territorial expanses in the Amazon contrast with limited capacity of state governments to analyze and certify individual registries.

An important challenge to implementation of CAR was the need to develop a specific module of the system to register the territories of traditional and indigenous peoples and communities. In recent years, SFB developed the CAR-PCT module based on their own interpretation of the law and on consultations with

leaders and organizations of different segments of society (escaped slave community quilombolas, agro-extractivists and indigenous). The module entered into operation with little contestation.

But there are various aspects of management and use of collective lands on the part of traditional and indigenous communities that do not communicate well with the architecture of the system. CAR was conceptualized and designed to make feasible the environmental management of individual private properties. Adapting SICAR in this case means incorporating much more complex territories than a private property, administered by different legal frameworks, to the registry.

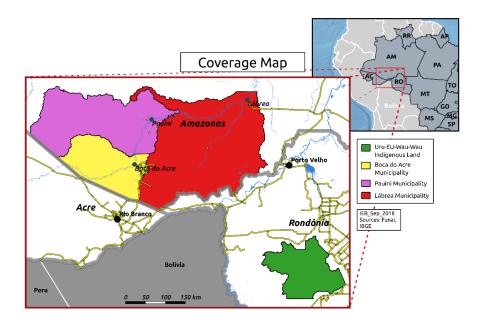
The National Commission for Sustainable Development of Traditional Peoples and Communities (CNPCT) analyzed the structure of the CAR-PCT module in greater depth and implications of the registry for regimes of collective land use. Based on their findings, various doubts about structural aspects of the registry emerged. These issues are not yet reconciled even though the CAR-PCT module is operational and many collective territories are already inserted into the system.

In the case of the Amazon, one of the most critical questions for CAR implementation is the fact that this region is the last frontier for agricultural expansion, being seen by this sector as an enormous reserve of land and natural resources available for exploitation.

In the context of this land and resource rush, atypical uses of CAR have been observed on the part of private declarers, along with indications that the registry may possibly be used to legitimize processes of land grabbing.

The most recent analyses of the dynamics of economic occupation of the Amazon identify two critical regions in terms of deforestation, illegal exploration of natural resources, land grabbing, territorial conflicts and rural violence: 1) the area of influence of the BR-163 highway between Mato Grosso and Pará states, and; 2) the tri-border region between the states of Amazonas (AM), Acre (AC) and Rondônia (RO).

In this paper, official data on CAR implementation in the tri-border frontier (AM/AC/RO) were used, with special attention to the southern part of Amazonas state and the municipalities of Boca do Acre and Lábrea. These two municipalities are recognized by the Environment Ministry as priority areas for actions to combat deforestation and for territorial planning.



By crossing different official data bases with SICAR information, our analysis identified at least two atypical uses of CAR in the region studies. Our hypothesis is that these atypical uses of CAR are related to land grabbing processes and illegal exploration of natural resources.

The first atypical use of CAR is known as "super-registration". Considering that CAR registration is self-declaratory, it is possible for private agents to manifest interest in vast extensions of public lands without valid property titles. These "super-registrations" become administrative facts that can support requirements for private use of the areas.

The second is the overlap of registered areas. Spatial data from CAR show that many areas declared by different private agents overlap. Some of those registrations also overlap traditional communities and family farmer lands.

In the next section a brief contextualization of the Brazilian Amazon will be presented such as expansion of capitalism in the rural areas and challenges to implementation of CAR in these conditions. Next, the concept of "land grabbing" will be discussed and how land grabbing has been operationalized in the international and Brazilian context. Evidence of how atypical uses of CAR discussed here are related to diffuse land grabbing strategies, will be presented. Finally, additional concluding comments and suggestions for further studies are offered.

2. Implementation of CAR on the Amazon Frontier

One of the central questions in order to analyze CAR implementation in the Amazon is the fact that the land and the natural resources in the region are in dispute. The conflicts and pressures for economic incorporation of the territories respond to a frontier dynamic of agricultural encroachment and expansion of forest and mineral extraction.

The agrarian history of Brazil registers at least three great phases of expansion of the agricultural frontier towards the interior of the country since the middle of the 20th century. The first phase took place starting in the 1940s and incorporated vast areas of the state of Paraná to the national agricultural economy. The second phase was expansion of the frontier to the Center-West of the country between 1950 and 1960. The third phase of frontier expansion was directed to the Amazon and started in the 1970s, encountering a much different political scenario than that which occurred in previous cycles (Schmink & Wood, 1992).

This last phase of frontier expansion stretches to the current days and is marked by conflicts, territorial disputes and conflicting visions and projects for the Amazon. The region became the scenario for a land rush of continental proportions. Opening of roads and official colonization programs were incentives for migratory flows originating in different regions of the country in direction of the Amazon. In addition to these official programs an intense movement of people and resources also took place in a disorganized fashion. It was a veritable land rush in search of economic opportunities in primary activities such as forest and mineral extraction and extensive cattle ranching (Torres et all, 2017).

Although hegemonic, the movement of expansion of the agricultural frontier to the Amazon encountered resistance of indigenous peoples and traditional populations that organized themselves politically in the past three decades. These segments of society have struggled to assure their territorial rights in accordance with premises of the Federal Constitution of 1988, after decades of violations. The fact is that in ample expanses of the Brazilian Amazon, land is in frank dispute and numerous agrarian conflicts continue to be recorded.

This situation of social conflict between new arrivals claiming the land and populations that traditionally occupied the territory is the most relevant sociological question for characterization and definition of the frontier in Brazil (Martins, 2012). Appropriation and control over the land is the essential factor in this dynamic. Thus, the phenomenon of land grabbing is an object of key analysis in order to explain

the intense agrarian transformations and models of occupation and land use in the Amazon.

It is in this context that CAR is being implemented. The institutional and operational precariousness of state environmental agencies contrasts with the number and complexity of conflicts that they must administer. At the same time, private agents who appropriate land by way of land grabbing tend to use CAR to legitimize their territorial intentions, frequently in conflict with the rights of traditional and indigenous populations.

Although the Forest Code prohibits the use of CAR to regularize possession or property of land, many situations emerged in which CAR was used intentionally for this purpose. Today this is one of the most controversial questions involving implementation of the Forest Code in the Amazon, and an enormous challenge for public administration, for the judiciary and for civil society organizations.

3. CAR and land grabbing

Discussion on the use of CAR as part of the process of land grabbing is controversial and is part of the public debate on implementation of the Registry in the Brazilian Amazon. There are various cases of atypical use of CAR that have been denounced to the Public Prosecutor's Office as fraudulent attempts at illegal appropriation of public lands and natural resources. At the same time, CAR has been pointed out as a useful instrument in the struggle against land grabbing by creating an official data base on land tenure.

The basis of our analysis is as follows: Is CAR being used to legitimize land grabbing processes in the Amazon? To respond to this question, evidence of atypical uses of CAR in southern Amazonas and possible relations with land grabbing were analyzed.

The concept of land grabbing is used in the literature in quite an elastic manner to designate processes of transfer and concentration of property of land on a large scale and in different national contexts.

An important part of more recent studies analyzes the phenomenon based on transactions of buying and selling land involving governments, companies and foreign investors. These operations intensified as a result of multiple crises (food, climate, energy and infrastructure) that emerged starting in 2007-2008 (Borras et al., 2012).

In a study for the UN Food and Agricultural Organization (FAO) on land markets in seventeen countries in Latin America, Baquero & Gomes (2012) define land grabbing as transactions for purchase of large expanses of land (over 10,000ha) with participation of governments acting as sellers or buyers, the acquired lands being destined for food production on a large scale.

Two principle vectors for global processes of land grabbing from 2008 are identified by Grain (2008). The first is direct participation of countries that are large consumers of food that invest in acquisition of large expanses of land overseas as a food security strategy. The second is participation of the financial sector, pension funds, investment funds and companies, for example, in acquisition of land for the objective of return on capital with positive rates of profit.

These transactional approaches have as an objective, analysis of operations of buying and selling that occur in the formal land market. The author dedicates special attention to processes of foreign and financial acquisition of land and of natural resources that in many cases threatens the territorial rights of family farmers and traditional occupants. These operations are the basis of "extreme concentrations" of land and natural resources and of the "new logic of expulsion" of social minority groups as part of the current dynamics of global capitalism (Sassen, 2016).

Processes of land grabbing with direct or indirect participation of foreign capital have been registered in various regions of Brazil, especially in those areas already incorporated and consolidated by modern agribusiness, as shown by Pereira & Pauli (2016) and Sauer & Leite (2011).

But in the context of expansion of the agricultural frontier in the Brazilian Amazon, numerous cases of land grabbing have been registered that do not involve participation of governments and foreign investors. Data on formal transactions of the land market and foreign investments are important, but insufficient to explain land grabbing processes in the Amazon.

In the majority of cases registered, private appropriation of land and natural resources in common use is practiced by national economic agents in a stage prior to establishment of formal land markets. Many times these operators resort to violence and judicial actions to consolidate their dominion when governments and foreign investors have not yet appeared on the scene.

In the year 2000, a Parliamentary Inquiry Commission (CPI) was created in the National Congress to investigate and make recommendations to the administration and to the judiciary aiming to curtail land grabbing (*grilagem de terras* in Portuguese) in the Amazon. The report of the commission revealed

various cases of participation of Brazilian citizens and companies in the process of illegal appropriation of public lands, many times for the purpose of financial speculation.

Thus, land grabbing that takes place in the Amazon does not necessarily involve participation of governments and foreign investors as vectors in the operations, as suggested by Grain (2008), Baquero & Gomes (2012), among others, although this may also occur.

In the tri-border region analyzed here, the predominant mode of property concentration is private appropriation of public lands in a long and complex process that may involve mechanisms of fraud, political influence, judicial disputes, corruption, use of violence against minority groups, among other mechanisms.

Faced with multiple possibilities of the concept of land grabbing, we needed an operational definition for analysis of the processes of transfer of lands that take place in the Brazilian Amazon since the middle of the 20th century. These transactions do not necessarily align with assumptions of control of the land on the part of foreign capital, present in many of the most recent analyses.

In 1999 the Institute for Colonization and Agrarian Reform (INCRA) published a document entitled the "*grilagem* white book" in which it defines land grabbing as being "all illegal actions that aim to transfer public lands to the property of third parties" (Brasil, 199, p. 12).

But the definition given by INCRA also has its limitations. In many situations the transfer of public lands to private agents takes place legally, even by way of governmental incentive policies. Thus, concentration of land by means of land grabbing may involve both legal and illegal means as well as policies, narratives, national projects, domestic agrarian elites and international investments.

By analyzing a broad spectrum of research on land appropriation on a global scale, Pereria (2017) observed that the central element in these processes is "land control". According to this premise, land grabbing would be:

"a process of appropriation of land, territories and their goods (natural resources, water, soil quality, biodiversity, mineral resources, among others), which can be carried out through the purchase of rural property, through leasing, through a partnership contract, through an unregistered contract, through strategies of corporations in constituting companies in the name of third parties possessing a national identity, through tactics of fusions and joint ventures among national companies, through publicly traded companies with free-float shares, that is shares destined for free

circulation, or through public concession for exploration of above-ground use".

The formulation of Pereira (2017) greatly expands the concept of land grabbing to cover a diversity of mechanisms for transfer of control of the land and rights to exploration of natural resources and not only operations involving buying and selling on the formal land market. But the focus of concern is still the participation of foreign investors of different types in control of the land. Operations that involve appropriation of public lands by private national agents are not well reflected in this concept.

From our point of view, the notion of land grabbing needs to encompass the transfer of large expanses of public or private lands or land of collective use to a relatively limited number of private agents, the concentration of land being the essential factor.

In this sense, we understand land grabbing as being the transfer of control over large expanses of public or private lands or lands of collective use to private national or foreign agents, resulting in increased concentration of property. These transfers may take place by legal or illegal means, by buying or selling lands or by other mechanisms of control such as land titling, forest concession, mineral concession, leasing, partnership contracts, REDD projects, among others'.

The affirmation that CAR is being used with the intent of increasing private control over public lands allows one to relate this atypical use of the registry with land grabbing practices. In the following sections two of these atypical uses will be discussed: super-registration and overlap of registered areas.

4. Super-registration

In the Brazilian legal framework, rural properties, regularized or not, are classified according to their area in hectares. The basic unit is the "fiscal module", whose area varies according to the state or region. In the case of southern Amazonas state, a fiscal module is equal to 100 hectares.

According to this classification, rural properties varying from 0 to 400 hectares in size are considered as family farms or smallholder properties. Medium sized properties are those between 400 and 2000 hectares in area. Large properties are those with areas between 2000 and 20,000 hectares.

SICSAR data for the state of Amazonas show a total of 42,399 registers in the system with a total area of more than 23 million hectares. Approximately 0.3% of

these registers declare areas greater than 20,000 hectares. There are 121 'superregistered' properties considered to be 'atypical', not only for the enormous extent of declared area, but also for incompatibilities and distortions in relation to official land tenure data.

Table 1 - CAR particulars in the State of Amazonas.

	No. of Registers	%	Area (ha)	%
0 - 400 ha	38489	90.78	2,545,773.72	11.02
400 - 2000 ha	2943	6.94	2,629,413.50	11.38
2000 - 20000 ha	846	2.00	4,072,872.59	17.63
Super-registered	121	0.29	13,852,208.76	59.97
	42399		23,100,268.57	100.00

Source: SICAR, September 2018

The total declared area in this small parcel of 121 super-registered properties represents approximately 60% of the total declared area in the system (Table 1). These numbers show just how large are the pretentions of a small number of individuals or companies over the majority of lands in the state.

Although the numbers indicate a trend towards extreme concentration of land, they need to be analyzed with caution, given that in part of these registers a phenomenon of overlapping declared areas is observed. In these cases, two or more declarers register polygons that are superimposed totally or partially on the same area. Other problems arising from overlapping claims will be discussed in the next section.

The occurrence of super-registries and the proportion of declared areas are evidence of a veritable rush for control of land and natural resources, not only in the tri-border region analyzed here, but in practically the whole state of Amazonas.

The SICAR numbers relative to the municipalities of Boca do Acre, Lábrea and Pauini show that in only 23 registers (0.4% of the total), 58% of the total land area was declared, a proportion very similar to that of the state as a whole. Also in this case, the total declared area contains a distortion due to overlaps in declared areas in some of the registers. The real area affected by this group of 23 registers, discounting overlapping areas is 2,531,874.77 hectares, approximately 11% less than the total area declared. At any rate, the numbers show the level of pretention of a few agents over more than half of the territory.

Table 2 - CAR particulars in Boca do Acre, Lábrea and Pauini municipalities.

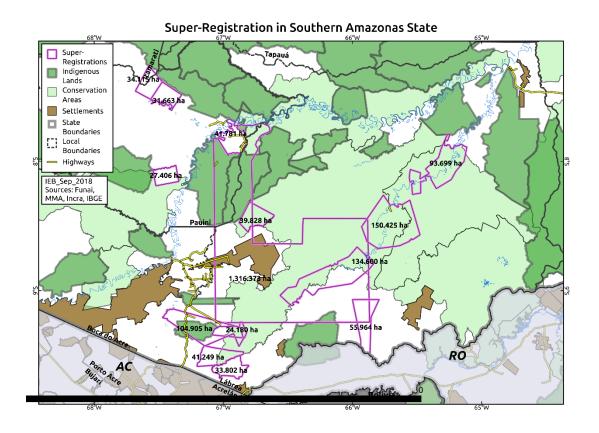
	No. of Registers	%	Area (ha)	%
0 - 400 ha	4864	85.08	493,340.30	10.23
400 - 2000 ha	650	11.37	609,849.98	12.65
2000 - 20000 ha	180	3.15	911,275.05	18.90
Super-registers	23	0.40	2,807,834.63	58.23
	5717		4,822,299.95	100.00

Source: SICAR, September 2018.

In the most critical area of the advance of the frontier in southern Amazonas (municipalities of Boca do Acre and Lábrea) the SICAR data show 14 registers of rural properties as super-registered. The most probable hypothesis is that there are no valid documents to prove land tenure nor real occupation of these areas on the part of the declarers. By crossing public information on the super-registers with other official data bases on land titles, certificates, concessions or authorizations for use, no information can be found on the supposed propertied declared in the CAR system.

All of the registries cited overlap with territories with varied destinations under the responsibility of public agencies such as the Federal Property Management Office (SPU), INCRA and the State of Amazonas. The presence of these 'superregistries' in SICAR did not result from errors in the system or problems of accuracy in the data, but rather from intentional registration actions, with definition of specific geographies well established.

These 'super-registries' may also correspond to land titles that have already been canceled by federal or state governments during the process of creation of protected areas or through judicial decisions, but that "re-appear" in the system as private areas.



The above map shows polygons of the 14 super-registries in Boca do Acre and Lábrea and the cases of total or partial overlap. The self-declaring character of CAR allows for register of polygons in the system even without documentary evidence to back it up. In these cases, CAR is used as a claim or manifestation of private interest over public lands, even though this was not the purpose of the land registry instrument.

The CAR receipt protocoled and inserted into the national system becomes the only document with cartographic representation of the boundaries of the land that is being claimed. Even though the registry does not possess any legal land tenure value, these registries create an administrative fact and feed expectations on the part of the declarer that the areas could be subject negotiation or indemnification on the part of the government at some time in the future.

These pretentions of control over territories overlap public protected areas, indigenous lands, rural settlements, traditional territories and public lands not yet designated.

It is speculated that the greater part of these registries do not have corresponding valid land tenure documents and could not possibly be approved and certified by the state environmental agency (SEMA). But as long as the work of analyzing and verifying does not take place, the registries remain in the system. They record as much the dimensions of the areas claimed as well as the potential impact of these registries in terms of conflicts and disputes that they may provoke in case they are validated.

5. The problem of data transparency

Analysis of information on titular declarants of the super-registers could shed light on the processes of land grabbing in the region and on the strategies of their agents. But attempts of the Brazilian Forest Service (SFB) to grant transparency to these data, given the indices of bad faith on CAR declarations, have been frustrated so far.

In 2014 the Environment Ministry published two Normative Instructions (INs 02 and 03/2014), defining general CAR procedures and classification of information of both a public as well as private nature.

Normative Instruction 03/2014 establishes what should be protected by fiscal confidentiality: 1) information on the property of private individuals and companies stored in SICAR; 2) identification of the landowners or possessors and their respective properties or legal claims; 3) information that associates the properties or legal claims to their respective landowners or possessors, configuring proprietary relationships.

According to this Normative Instruction, the Environment Ministry itself admits that the areas of the so-called super-registries constitute "properties of individuals and companies" and that the relationship between the declarers and the areas declared constitute "proprietary relations" that must be protected by fiscal confidentiality. This is quite a blunt statement given the precarious nature of the declarations and incompatibility of the data.

The registries show that the declared areas in the super-registries overlap totally or partially with public lands. Thus, there cannot be a proprietary relationship between the private declarers and the public goods before the whole formal process of privatizing or onerous transfer has taken its course.

The official position of protecting the supposed "proprietary relationships" present in the super-registries with fiscal confidentiality ends up creating a comfort zone for the land grabbing agents. Given the low level of land tenure governance and lack of transparency, these agents are free to declare their claims over public lands without the inconvenience of having their identity revealed.

6. Overlap of registered areas

Problems of overlap of registered areas are relatively common in CAR, principally because it is a self-declaring instrument. Partial overlaps can be caused by errors or imprecisions of the instruments used or by use of cartographic bases and satellite images of limited precision.

These cases do not necessarily represent a dispute for possession of land although this also could occur. Without ground reference points 'in loco' it is not possible to guarantee the accuracy of the declaration in relation to the perimeter of the property, Permanent Protected Areas (APP) or areas of Legal Reserve (RL). This causes various overlaps in the SICAR data base.

But in the Amazon, there are many situations in which CAR overlaps are atypical and do not result from the problems cited above. They occur when private agents self-declare themselves as occupants of a determined public area that has already been totally or partially registered by another agent or that already possesses an official designation as a protected area or an indigenous land, for example.

In these cases, overlaps result from an intentional act of the agents and indicate disputes and conflicts for control of the land and of access to natural resources, indigenous peoples and traditional communities being the most vulnerable social groups. Given the precarious nature of governance of the land in the whole region, these conflicts can drag on for many years without a definitive solution.

The problem of CAR overlap generates a distortion in the data about the total area registered. As shown in Table 3 below, this problem occurs in all the regions of the country, given that in all regions, the area registered in SICAR is greater than 100% of the liable registry area. But in the case of the North region (Amazon), the total area registered in the system represents almost 150% of the liable registry area. The 48.9% overlap rate indicates that many declarers are manifesting interest over the same area. This is a potentially contentious situation and demonstrates the intensity of disputes in the region.

Table 3 - Area liable for registry x area registered in SICAR in five Brazilian regions.

	Area liable for		
Region	Registry	Area Registered	% of Overlap

North(Amazon)	93,717,515	139,628,815	48.99
Northeast	76,074,156	76,930,685	1.13
Center-West	129,889,570	133,481,334	2.77
Southeast	56,374,996	68,081,493	20.77
South	41,780,627	45,011,475	7.73
	397,836,864	463,133,803	16.41

Source: SICAR - September 2018

Among the seven states of the North region of Brazil, the situation of Amazonas state is the most dramatic in terms of overlap of registered areas. As shown in Table 4 below, the total area registered in Amazonas state is almost five times greater than the area liable for registry in the state according to data of SICAR itself.

The rate of overlap of 363.7% will require a monumental effort of analysis of the registries, correction of the polygons and validation of compatible geometries with the real situation in the occupied areas. Since there are no signs that the state government is preparing to conduct the analysis of these overlaps, the problem is accumulating without any solution appearing on the horizon.

Table 4 - Area liable for registry x area registered in SICAR in the seven states of the Amazon.

State	Area liable for Registry	Area Registered	% of overlap
Acre	3,528,543	9,466,751	168.29
Amapá	2,079,381	3,389,535	63.01
Amazonas	6,733,964	31,226,115	363.71
Pará	56,836,278	60,929,655	7.20
Rondônia	8,433,868	12,532,260	48.59
Roraima	1,717,532	4,837,399	181.65
Tocantins	14,387,949	17,247,100	19.87
	93,717,515	139,628,815	48.99

Source: SICAR, September 2018.

Based on these general data on registered areas in Amazonas state, it is possible to check how these situations of overlap affect specific territories. Analysis of SICAR data for the tri-border region allows for identification of at least two types of overlap considered atypical and of high impact in terms of agrarian conflicts.

The first type of overlap occurs when a private agent registers in CAR an area so large that it covers totally or partially the areas of other occupants also registered in the system. Thus, large and medium registries overlap smaller areas occupied

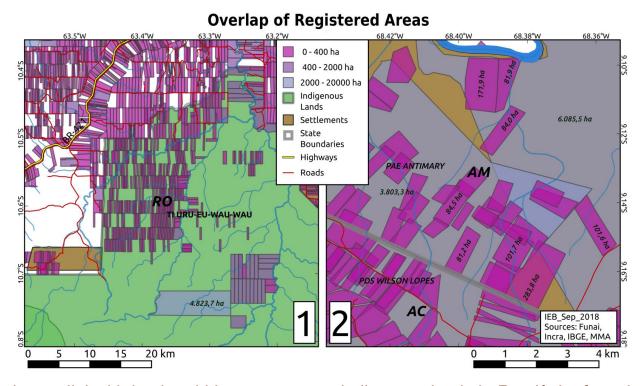
by family farmers. Many of these families are in situations of social and economic vulnerability and have not yet managed to register their land possessions in CAR.

In the second type of overlap, private agents declare in CAR to be occupants of lands located in the interior of protected areas, agrarian reform settlements or indigenous areas already officially recognized and demarcated by the government and where private registries should not fall at all. In this case, overlaps are a demonstration of force on the part of land grabbing agents in the region. They do not hesitate to confront existing legislation and promote illegal occupation of official territories, making CAR and instrument to do so.

A convincing set of evidence of the use of CAR in land grabbing processes in the region is present in the complaint filed by indigenous leaders of the Uru-eu-wau-wau people together with the Federal Prosecutors Office (MPF). The leaders reported to the MPF that their territory, demarcated and certified by the federal government, is being systematically invaded by cattle ranchers. These cattle ranchers register the CAR in the invaded areas as if they were the legitimate owners of the area.

Map 1 below shows the impact of these illegal occupations on the northeast part of the indigenous territory where a block of registries with areas up to 400 hectares each is registered. In the central area of the indigenous territory a group of medium size registries (400 to 2000 hectares) and at least one registry with more than 2000 hectares can be observed. This specific case demonstrates the systematic and planned character of land grabbing and its affront to indigenous rights formally recognized and assured in Brazilian legislation.

In May 2018 MPF prosecutors recommended to the State Secretariat of Environmental Development (SEDAM), responsible for CAR in Rondônia, cancellation of 699 registries whose areas overlap with the Uru-eu-wauwau Indigenous Land as well as with the Pacaás Novos National Park.



In parallel with land grabbing attempts on indigenous lands in Rondônia, frontal attacks of the state rural lobby against officially created protected areas take place. An example of these attacks was the decision of the Legislative Assembly of the State of Rondônia that recently revoked the decree for creation of eleven state protected areas, equivalent to approximately 500,000 hectares (Kanindé et al., 2018). The purpose of this type of decision is to liberate these public areas for agribusiness and land speculation.

A second emblematic case of registry overlap can be seen in the Antimary Agroextractivist Settlement Project (PAE) located on the southern boundary of Amazonas state.

Created to make feasible collective use of the territory on the part of traditional populations, the settlement project was gradually occupied by cattle ranchers. These ranchers used their CAR registries to try to legitimize their irregular occupations in an area under federal dominion and under the administration of INCRA.

Map 2 above shows the geometries of the various private registries overlapping the Antimary PAE, and also shows the occurrence of total or partial overlaps among many of these registries. Even more serious situations are observed in territories occupied by traditional populations that have not yet passed through processes of mapping for the purpose of official recognition of their territorial rights.

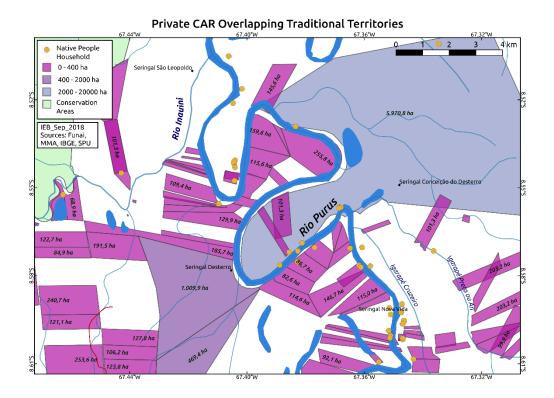
Minorities and social groups in situations of vulnerability have had much more difficulty registering their territories in SICAR. Without yet possessing an official cartography, parts of these areas are being inserted in the CAR by private agents interested in non-traditional use of the land, notably cattle ranching. These registries indicate situations of latent conflict.

The following map shows locations of residences of families that traditionally occupy seasonally flooded areas (várzeas) of Rio Purus in the municipality of Boca do Acre, Amazonas. These families were registered by the Federal Property Management Office (SPU) and received a provisional document entitled Authorized Term of Sustainable Use (TAUS) that guarantees them the right to remain in the area and to make use of the natural resources in a traditional manner.

However, the TAUS is still a fragile document because it does not delimit the perimeter or area of traditional use of each family. Thus, their real territories remain invisible to the official cartography and subject to various pressures of use and occupation on the part of private agents.

The map of a small parcel of the territory shows the existence of at least one CAR with an area of 5,900 hectares falling on top of the area of collective use of at least seven river-dwelling families. This same registry overlaps with two others with areas less than 400 hectares each.

Various other registries with areas less than 400 hectares do not appear to correspond to the locations of residences of the families registered by the SPU. Other areas clearly occupied by river-dwelling families remain as empty registry spaces. This points to a situation of "territorial invisibility" and difficulty of those families in carrying out the CAR in their own areas of use.



When overlaps of this type appear in SICAR they indicate conflicting interests over the same portion of territory. The registries with this problem cannot be validated by the agency responsible until the overlaps are analyzed and irregular registries are canceled and regular registries are validated.

In order to validate conflicting registries, presentation of land tenure documentation will be necessary. Cases that are not pacified by presentation of documents can request the government to make a technical inspection visit for the purpose of reconciliation.

But the institutional fragility and lack of resources that affect state environmental agencies have greatly delayed the work of analysis and validation of the registries. In the State of Amazonas, for example, 42,399 private registries were made in the SICAR system, but up to July 2018, the State Secretariat of Environment (SEMA) had only managed to analyze 300 of them. The rest remain in the system as registers of multiple manifestations of interests over the territory, be they legitimate or not.

7. Conclusion

Evidence gathered and presented in this paper show that there is a rush for control of the land and forest resources in the tri-border region, in the western part of the Brazilian Amazon. Data and atypical information registered in SICAR, for example the super-registries and the multiple overlaps of registered areas, are important clues for a deeper understanding of this phenomenon.

Pressure for private use and appropriation of public lands and territories of common use takes place in a context of political supremacy of agribusiness and strong action of the rural caucus in the National Congress as much as in the federal administration and in the state governments. The combination of this political juncture with fragile governance of land tenure and the action of private agents thirsty for new areas for exploitation or financial speculation create a situation of a perfect storm in the Amazon.

If this scenario prevails, in the coming years intensification of attacks on territorial rights of peoples and traditional and indigenous communities and emergence of new social and agrarian conflicts are expected. The predictable consequences are an increase in deforestation for conversion of forests in pastures and concentration of land tenure on the frontiers of expansion of capitalism in the region.

Orchestration of CAR in an attempt to legitimize control of territories by private agents shows a certain update of strategies of land grabbing in the region. The CAR registry offers these agents the opportunity to place a cartographic representation of the claimed areas in an official data base. The self-declaratory nature of CAR favors this dynamic.

The Brazilian Forest Service and state agencies responsible for CAR have an enormous problem on their hands. With overlap rates of registered areas of 48% in Rondônia, 168% in Acre and 363% in Amazonas, the effort to analyze, correct and certify the registries has a dimension that greatly extrapolates installed capacity of the institutions.

The situation is critical in the case of Amazonas, not only for the very high rate of overlap but also because the State Secretariat of Environment (SEMA) simply did not structure itself adequately to administer the registry and to rectify the atypical situations. Also, there are no indications that this structuring will occur in coming years.

The delay of the administration in analyzing and proceeding to cancelation or validation of the registries creates a situation of judicial insecurity and an administrative vacuum that favors occupation and illegal exploitation of the

territories. The low level of governance creates ideal conditions for the action of land grabbing agents.

The situation is also critical for social groups whose territories of use have not yet been identified and not even officially demarcated. This is the case, for example, of the river-dwelling communities that traditionally occupy seasonally flooded areas (várzeas) of the main river channels and other public areas not yet designated. In this condition, these groups remain "invisible" and their territories of use can easily be registered by private agents, creating a situation of environmental injustice. A cartography of these territories has yet to be produced. As long as this does not happen, a situation of social and economic vulnerability prevails in those communities.

Transparency of information contained in SICAR is an essential factor for critical analysis of the social-spatial and economic dynamics that the registry reveals. The current protocol of the Environment Ministry allows access to aggregated data contained in the system and favors crossing of information with other official data bases.

Without a doubt, the system offers an archive of information of great relevance to research, planning and formulation of public policies. But protection of fiscal confidentiality of suspected registries or those with indications of illegality, as is the case of the super-registries discussed here, give rise to the risk of "colonization" of SICAR by land grabbing operators.

Analysis of official data bases on governance of land tenure and environmental management can generate important input for critical interpretation of the phenomenon of land grabbing in the Amazon and in Brazil. While gathering data for preparation of this paper, at least three other lines of investigation were identified that could shed light on the use of CAR in processes of land grabbing in the region studied.

The first line of investigation is the use of CAR to qualify private requirements for forest timber exploration. Licensing of these operations depends on approval of Forest Management Plans by official environmental agencies, CAR being one of the requirements for approval.

By way of CAR, agents try to legitimize their dominion over vast areas of forests even without having valid land tenure documents. In this case, control of the land for exploitation of natural resources is at stake, and not the value of the land itself. Analysis of required Forest Management Plans and the cartographies that these agents insert into CAR can be cross checked with official data on timber tracking

and transport. Thus it is possible to map the forest exploration network, its spatial distribution in the territories, and related socio-environmental conflicts.

A second line of investigation has to do with the use of CAR in the process of certification of cattle herds for sale in the agro-industrial beef chain. CAR is being required by governmental authorities to certify the origin of cattle slaughtered in packing houses accredited by the Ministry of Agriculture.

However, cattle herds raised in areas that were occupied and deforested illegally are being certified from properties registered in SICAR and authorized for sale. This process is known as "cattle laundering". Analysis of CAR data, certification, tracking and sale of herds can shed much light on the economic dynamics of agriculture on the frontier regions and on mechanisms of appropriation of territories.

A third line of investigation is one relating CAR registries with land tenure data bases, valid and canceled land titles and requests for land tenure regularization presented by individuals to state and federal land tenure governance agencies. In this case a phenomenon that could be studied is the "growth of land titles". This occurs when a private agent holds title to an official land title but declares a much larger area on CAR than that area effectively titled. By means of the CAR registry, a cartographic representation is generated that could be used in requests for land tenure regularization, aiming to amplify the titled area.

Finally, the advent of CAR and implementation of the new Forest Code are themes of great relevance for comprehension of agrarian transformations and social conflict in contemporary Brazil. Analyses of these topics should not be bound to technocratic aspects alone of the associated public policy system. Now is a moment of extremely complex juncture requiring theoretically anchored interpretations in studies of political ecology and environmental and sociological justice of agrarian conflicts.

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