sociedade & natureza

DOI: http://dx.doi.org/10.14393/SN-v31-2019-46987

Protected Areas and the territory in Brazil: case studies in four Brazilian biomes

Unidades de Conservação e o território no Brasil: estudos de caso em quatro biomas

Alexandre Resende Tofeti[1]
Neio Campos[2]

Abstract
What are the transformations in the uses of the territory that a Protected Area (PA) promotes in Brazil? This is the starting point for this article. Considering that the PAs of the different federated entities make up a considerable extension of the national territory, this question gains relevance and complexity, since the Brazilian system defines twelve different PA categories with a distinct set of permissions and prohibitions for each one. This complexity is combined with a territory that has diverse situations resulting from its historical formation. In order to answer the initial question, we selected 20 PAs in 4 biomes (Atlantic Forest, *Cerrado*, *Caatinga* and Amazon) for the case studies, combining semi-structured interviews with key actors and field observations to trigger the analytical categories of Social-spatial Formation (Santos, 2005) and Used Territory (Santos, 2007). By way of conclusion, this article states that the transformations in the uses of the territory promoted by the PAs are based on four main variables: history of the uses of the territory, population density, complementarity with economic interests, and environmental conditions. The combination of these variables in each territory will condition the type of transformation of the territory uses that a PA promotes.
Keywords: Protected Area, use of the territory and Social-spatial Formation

Introduction

Brazil is one of the few countries that has achieved international biodiversity conservation goals, among them the creation of Protected Areas (henceforth PAs), revealing one of the most remarkable

[1] University of Brasilia, Department of Geography, Brasilia, Federal District, Brazil. xan.tofeti@gmail.com
[2] University of Brasilia, Department of Geography, Brasilia, Federal District, Brazil. neiocamp@unb.br

territorial aspects of the Brazilian public environmental policy. The territorial extension includes both continental PAs and marine environments.

Given that the PAs indicate what can and cannot be done in the territory, and because they mobilize various parties concerned with their management, the PAs concretely transform territorial bases, i.e. the territorial conditions prior to their creation.

Likewise, prior to the creation of a PA there was a territory occupied by social participants and that, at a given moment, their uses were altered or ratified to meet the precepts of the PA, depending on its type. Therefore, the PAs generate a rearrangement of forces and actions in the territory in which they are implemented.

These rearrangements of forces are extremely variable considering that the Law No. 9.985 (BRASIL, 2000) has created 12 different types of PAs grouped into two categories: those of restricted use, in which only indirect uses of natural resources are allowed, and the ones with sustainable use, which advocates the sustainable use of natural resources. Despite such importance, so far there is no study synthesizing the transformations they cause at the national level. Therefore, this article seeks to show the transformations that a PA promotes in the uses of the territory. It discusses five case studies of PAs created in relative spatial contiguity, to show the transformations in the uses of the territory caused by them and to summarize how they are added to the Brazilian territorial mosaic.

Methodology

The method adopted in this research considers the spatial and historical materiality involved in the uses of the territory and its specific logic.

The form content can only be understood by interpreting the historical and territorial context. To this end, we used the Social-spatial Formation category, proposed by Santos (2005), which explains why a given territorial arrangement exists in a given Nation-State. Therefore, for each case study, the initial focus was on understanding the history of the territorial occupation and its current corollary.

We adopted the research technique of case studies given the nature of the analysis object: a complex social phenomenon considering the multiplicity of interactions between society and nature that the PAs mediate. Yin (2010) states that case studies are usually adopted to offer an empirical understanding of contemporary phenomena, therefore appropriate for attempting to enlighten one of the facets of biodiversity conservation through PAs, by exhibiting the transformations in the uses of the territory in these units.

Thus, a 4-month field survey was conducted with semi-structured interviews, field observations, and visual records via videos and documental analysis of each PA group in relative spatial proximity.

The main step was to identify the main participants who act in the territory covered by the PA and to verify in their discourse which transformations the PAs promote in their daily lives or in their productive activities.

Each interview consisted of seven questions that sought to understand how the PA impacted people's lives, both in terms of work as well as in their daily activities. The interviews had specific questions for the PA managers and the municipal managers (usually Secretaries of the Environment or Agriculture) considering their view on public policy implementers and recipients of the PA in the territory, respectively.

Regarding the selection of key participants in each PA mosaic, the following criteria were followed: the first selection was based on the

analysis of the PA's reference documents and on the composition of the advisory board and board of directors. As a strategy for refining this selection, the first interview was conducted in the territories with the federal PA managers, who, with their knowledge of the territory and of the participants, indicated those who could be interviewed and offer greater content for the research. It is worth mentioning that the surveys were developed to address the research question without emphasis on a specific author, and were tested prior to the field survey, with the Secretary of the Environment from the municipality of Águas Lindas de Goiás, Goiás, Brazil.

Our analysis included 20 PAs, totaling more than 2.5 million hectares, located in one of the four official Brazilian biomes (Amazon, *Caatinga*, *Cerrado* and Atlantic Forest). The understanding of the biome considered here is the same as Conti and Furlan's (2000, p. 138): "a mature community or associations of dominant species in a given climatic condition in force".

Similarly, in each biome, sets of PAs in different categories and with territorial proximity were selected for analysis according to the following criteria: considering the same history of territorial occupation, the analysis of different types of PAs offers the real dimension of the extent to which each one affects or modifies the dynamics of territorial use. For this reason, the *Pantanal* and *Pampas* biomes were excluded from the investigation, since there are no federal PAs in different categories territorially close to each other.

For this study, the PRNH (*Private Reserve of Natural Heritage*, a category of conservation unit created by a rural owner's will) is not considered, since the initiative to create this type of PA comes from the landowner (voluntarily), and it is not managed by the State. Furthermore, the selection of the sample focused on the territorial

dynamics of the terrestrial PAs. Figure 1 and Table 1 present the territories analyzed with the respective number of interviews:

Figure 1. Map with the PAs studied per biome.

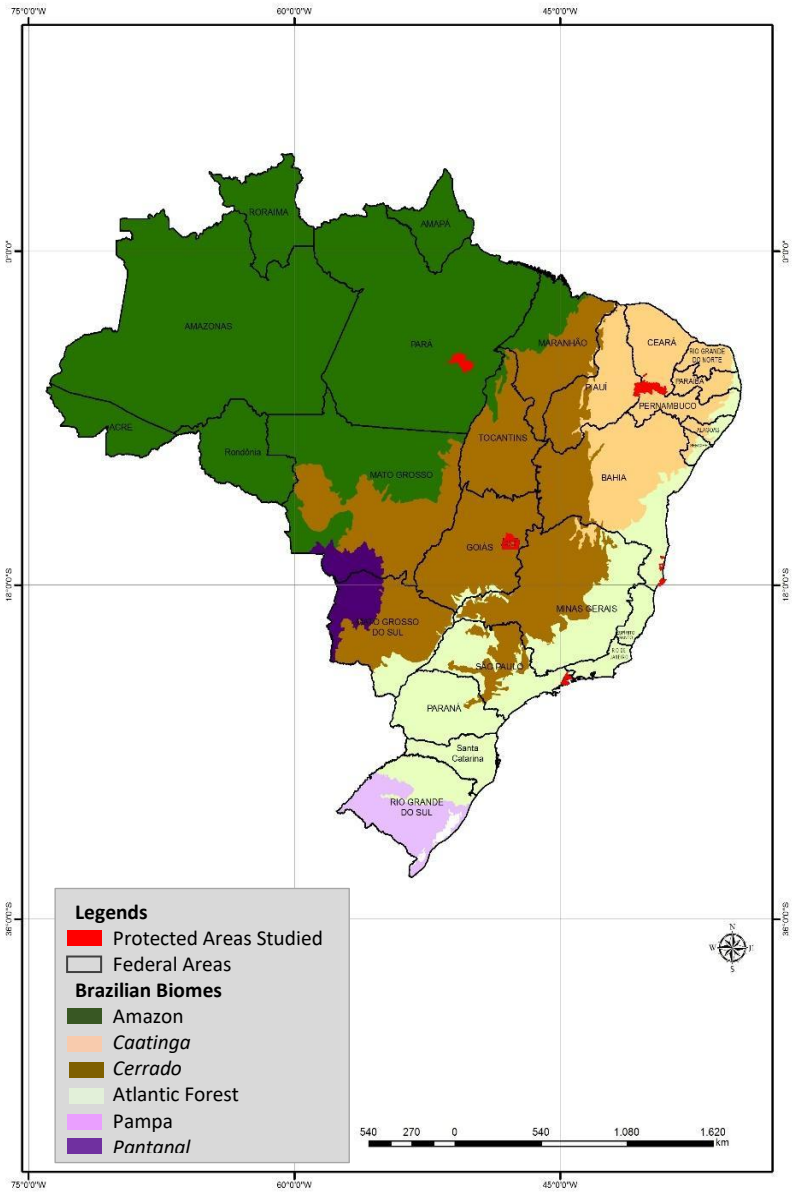

Table 1: Protected Areas studied in Brazil per Biome.

Biome	Primary Data	PAs Studied	Founding Year	Creation Law	Area (hectares)
Amazon - Carajás Mountains	24 interviews in 15 days	Igarapé Gelado Environmental Protection Area (APA, in Portuguese)	May 5th, 1989	Decree no. 97,718	23,285.09
		Tapirapé Biological Reserve (Rebio, in Portuguese)	May 5th	Decree no. 97,719	99,271.75
		Tapirapé-Aquiri National Forest (Flona, in Portuguese)	May 5th, 1989	Decree no. 97,720	196,503.94
		Itacaiúnas National Forest	February 2nd, 1998	Decree no. 2,480	136,689.91
		Carajás National Forest	February 2nd	Decree no. 2,486	391,263.04
Caatinga - Ceará	18 interviews in 15 days	Araripe-Apodi National Forest	May 2nd, 1946	Decree-law no. 9,226	38,919.47
		Araripe Plateau Environmental Protection Area	August 4th, 1997	Decree no. 148	972,605.18
		Aiuaba Green Station (Esec, in Portuguese)	February 6th, 2001	By decree	11,746.78
Atlantic Forest - south of Bahia	16 interviews in 25 days	Mount Pascoal Historical and National Park (Parna, in Portuguese)	November 29th, 1961	Decree no. 242/ Decree no. 3,421 of April 20th, 2000	22,240.67
		Pau-Brasil National Park	April 20th, 1999	By decree on June 11th, 2010	18,935.55
		Descobrimento National Park	April 20th, 1999	By decree in 1999, extended by decree in 2012	22,693.97
		Cassurubá Extractive Reserve (Resex, in Portuguese)	June 5th, 2009	By decree on June 5th, 2009	100,578.37
Atlantic Forest - south of Rio de Janeiro	9 interviews in 20 days	Bocaina Mountains National Park	February 4th, 1971	Decree no. 68,172/71 and Decree no. 70,694 of 2008	106,566.42
		Tamoios Green Station	January 23rd, 1990	Decree no. 98,864/90	9,361.00
		Cairuçu Environmental Protection Area	December 27th	Decree no. 89,242/83	34,690.72
Cerrado - Federal District	15 interviews in 20 days	Brasilia National Park	November 29th, 1961	Decree no. 241	42,355.54
		Descoberto River Bay Environmental Protection Area	November 7th	Decree no. 88,940	41,783.61

	Brasilia National Forest	June 10th	By decree	9,336.14
	Contagem Biological Reserve	December 13th	By decree	3,426.15
	Central Plateau Environmental Protection Area	January 10th, 2002	By decree	503,423.36
Total				**2,785,685.66**

Source: ICMBio, 2019, adapted by the authors.

The interviews were recorded with a digital recorder and were transcribed so that they could be analyzed. For each group of participants (PA managers, federal managers and local participants) keywords that repeatedly appeared in the interviews and opinions were listed, which demonstrated changes in the uses of the territory from the creation of the PAs; besides allowing an understanding of the territory visited and the changes in its uses.

Case Study

PA mosaic in the Carajás Mountains - PA, Amazon biome

In *Serra dos Carajás* (or Carajás Mountains), we found three predominant uses of the territory: mining, livestock and rural family production (settlements).

The mineral extraction in the Carajás Mountains is reflected in the good management structure and differentiated institutional support provided by company Vale to the PAs. According to the management plans, the creation of the first PA in the area served the State's interests in controlling the territory due to the discovery of mineral wealth and environmental constraints.

Itacaúnas Flona is the least structured and regularized in terms of land deeds. Moreover, it does not receive any support from Vale. In contrast, in terms of use and occupation, the PA with the most

regularized situation is the Tapirapé-Aquiri Flona. There is no use conflict either in its limits or in its interior because the land is regularized and it is in the center of the mosaic.

The Carajás Flona also presents a low conflict and its land is regularized. The history of this PA is connected to the mining context in the Carajás Mountains. Within the Flona there are three well-defined uses of the territory: mining, extraction of *jaborandi* (*Pilocarpus jaborandi*) and environmental tourism, the latter two were encouraged after the PA was created.

In another quadrant, the Igarapé Gelado APA has a history linked to the policies aimed at promoting occupation carried out by the Brazilian State. It received part of the gold miners' assets after the decommissioning of the Pelada Mountains mine and still has a tailings dam in its territory.

Finally, the more restricted Tapirapé Biological Reserve (Rebio) only allows observation, scientific research, and environmental education. This PA has extremely high biological importance, according to the Ministry of the Environment's definition of priority areas for conservation, sustainable use and distribution of the benefits of Brazilian biodiversity (BRASIL, 2007). . Since it is located in the north of the mosaic, it is on the frontline of the pressure vectors associated with settlement projects in the municipality of Marabá, State of Pará - Brazil.

After analyzing the interviews and based on the experience in this territory, it was possible to see that the PAs in the Carajás Mountains represent a typical case of successful inheritance. They inherited a well-preserved area from a state-owned company and, in addition, enjoy conditions that make them unique in Brazil. The dimensions witnessed in the mining area (largest open pit iron mine in the world) raises questions about the compatibility between high

environmental impact mining activities and the effectiveness of a PA in these conditions. This is an apparent incompatibility since there is evidence of the high effectiveness of those PAs in implementing appropriate environmental practices. They also support policies to technically increase the number of farmers living around the PAs and inside them, such as the APA. Thus, they have managed to reduce both the pressures on the remaining natural resources and the use of fires to prepare the soil.

One of the immediate consequences of this territorial context is the low level of conflicts in the PAs because the land is regularized. Wherever this did not happen, conflicts are latent, as is the case of the Itacaiúnas Flona, which was created later and did not belong to Vale.

Thus, the actions of the Brazilian Institute of the Environment and Renewable Natural Resources and, more recently, of the Chico Mendes Institute for Biodiversity Conservation (ICMBio, in Portuguese) resulted in important actions that transformed some uses of the territory: the work carried out beyond the limits of the PAs was a differential. Moreover, the institution of public uses and extractive activities in the Carajás Flona only happened after many negotiations with company Vale. Therefore, it is possible that the PAs transformed the uses of the territory by promoting new uses and modifying others through actions in its surroundings, except in the Itacaiúnas Flona.

This case demonstrates a very different perspective from that found by Monteiro et al. (2012), in the Sempre-Vivas National Park (Parna). In the latter, management was marked by confrontations, given the hegemonic preservationist vision in the Act that created it and by the subsequent management of the territory. This is reflected in the governance structure and social participation: in the Carajás Mountains, the Board of Directors and the Advisory Board are active

and allow exchanges between management and the local population. In the Sempre-Vivas Parna, it is the opposite.

In sum, most of the PAs in the Carajás Mountains are successful cases, even though high environmental impact activities take place within the PAs, which does not invalidate their effectiveness in maintaining many hectares of the Amazon rainforest and trying to promote sustainable development around them.

PA in the south of Ceará - *Caatinga* biome

The territory of interest of the PA of the *Caatinga* biome, south of the state of Ceará, presents three predominant uses: urban, subsistence agriculture and a gypsum hub that demands charcoal.

The Aiuaba Esec is in the ecoregion of the countryside depression (typical of the semi-arid region in the Brazilian Northeast), very susceptible to desertification. This PA is one of the most representative of the *Caatinga* and the most devoid of management structures. In any case, its ecological representativeness reflects a reasonable level of ongoing visitation and research.

The Araripe-Apodi Flona was created in 1946. It was the first National Forest created in the Brazilian territory (only the Araripe land was consolidated). When compared to the Aiuaba Ecological Station, it is better structured. The creation of the Araripe-Apodi Flona reflected concerns related to the supply of water to urban centers, given the expansion of the Crato-Juazeiro do Norte-Barbalha metropolitan area. It is currently under real estate pressure because the urban population wants to occupy the region with leisure farms.

Finally, the Araripe Plateau APA covers an area of 1,063,000 hectares in three different States Ceará, Pernambuco and Piauí, encompassing the territory of 33 municipalities. Its limits were defined

from an altimetric quota and, as a result, it received its current dimensions.

The field observations and interviews revealed that the PAs were able to transform the uses of their respective territories associated with two factors: water resource management and low rural economic dynamism. Thus, in relation to water, since it is a scarce natural resource in the region, its relief and appropriate conservation become clearly tangible for the population.

Hence, it became the main motto to justify the creation and convince the population of how important the APA and the Flona were. Even the type of preservation and the Flona uses make it look more like a National Park than a Flona. Regarding the second factor, low rural economic vigor, it also made the Esec successful in its implementation and with few conflicts. In another scenario, the Esec would probably be under more pressure.

Regarding the APA, it is unclear for the population how it works and how it can be used. Even so, it has been possible to encourage new uses and boost different characteristics on the historical uses of the territory, such as gathering *pequi* (*Caryocar brasiliense*) and the use of firewood. In addition, the APA has provided opportunities for strategic partnerships with municipalities, strengthening their environmental and territorial management. It is no longer just a federal enclave in the municipal territory.

One of the most striking aspects of this territory is the existence of Araripe Geopark. This Geopark has a more striking iconography than the PAs. Along all the highways and within the urban centers there are several signs indicating the geopark's geological site.

In short, this territory and its PAs have shown environmental aspects that are decisive for assessing the relationship between the institutional purposes of a PA and the legitimacy promoted by the

parties involved. In fact, they may or may not be favorable in the transformations of the territorial uses promoted by the PAs. Therefore, the level of transformation in the uses of the territory promoted by the Esec and APA is based on the environmental aspects of the territory, given that they naturally offer limitations to the uses.

This case study in *Caatinga* supports the findings of Laschefski et al. (2012, p. 409): "It is the imaginary built from the meaning of nature and its function [...] that will guide the actions of the individual in this world". According to the authors, in their study area (Minas Gerais, Brazil), the imaginary built was predominantly one of conflict. In the present case, the imaginary was utilitarian, thus the greater acceptance of the PAs by the population and the greater engagement in their management.

PA in the south of Bahia - Atlantic Forest Biome

The Atlantic Forest in the south of the state of Bahia was relatively preserved until the second half of the 20th century. However, after the 1970s, the socioeconomic situation in Brazil led to a change of course regarding forest exploration: intense logging, supported by the paving of BR 101 (a Brazilian longitudinal highway), succeeded by the production of livestock. As a result, the main uses of the territory in this area in 2017 were livestock, tourism, monoculture of papaya, eucalyptus and agrarian reform settlements.

In general, the national parks in this part of Bahia originated either by inheritance from old woodland areas (Pau Brasil Parna and Descobrimento Parna) or to preserve the Atlantic Forest remnants from all kinds of pressures (Monte Pascoal Parna). The fact is that this territory is permeated by conflicts due to real estate speculation and to its historical uses by indigenous populations, such as the Pataxós,

which claim areas of traditional use in the Descobrimento Parna and have Indigenous lands (Barra Velha) demarcated that overlap with the Monte Pascoal Parna.

In another context, the Cassurubá Resex is located in the main estuary complex of the Abrolhos Bank. Its 11,000 hectares of mangroves, islands and sandbanks form one of the largest mangrove areas in Bahia (NICOLAU, 2014). Besides being the territory into which the production of eucalyptus flows in the south of Bahia, the motivating factor for the creation of the Resex was the competition for maritime resources among fishermen and numerous seafood producers from other locations; and expectations regarding the implementation of shrimp farming in this estuary. These two facts led to the mobilization of local fishermen to create a Resex.

Based on field observations and by analyzing the interviews, we consider the territory in the south of Bahia one of the richest in terms of the diversity of the situations found. It was also in this territory that the disputes were fiercer. The Pau-Brasil Parna may be the PA with the lowest number of conflicts and has promoted a public use that can generate dividends for the local population in the future.

The implementation of public uses is a clear example that bringing the community, i.e. the degrading agent, into the PA and generating income in a sustainable manner may appease conflicts.

The management of the Cassurubá Resex was promoting a change in the relationship pattern with the beneficiaries to the point of fostering new leaderships and questioning the old ones, who associated themselves with a network of intermediaries who exploit the fishermen in the region. In this context, the meetings of the Resex council were being attended by many people and promoting intense debates.

The territory in Bahia has shown that the transformation in the uses of the territory promoted by the PAs is directly related to the

history of the uses of the land and to how it complements the existing economic interests. Hence, it was only possible to create Pau-Brasil and Descobrimento Parnas because they were purchased from private companies. However, the pressures suffered by the Descobrimento and the Monte Pascoal Parnas are related to the history of its past uses. Finally, the Cassurubá Resex confirms the history of the uses of the territory, but with new power rearrangements in the territory.

In the case studies of the Atlantic Forest (in the states of Bahia and Rio de Janeiro), it is important to highlight the influence of the extensive urbanization phenomenon discussed by Sancho and De Deus (2015). The PAs in this biome are invariably influenced by large and medium-sized urban centers concentrated along the coast, which results in conflicts associated with real estate pressure and past uses. The PA in this type of territory tends to rearrange the existing forces, sometimes acting by command and control, and sometimes by fostering the creation of associations of local communities.

PAs in the south of the state of Rio de Janeiro - Atlantic Forest Biome

The appropriation of this part of the Atlantic Forest had the influence of almost all economic cycles, especially the gold, this influence decreased with the coffee cycle. Just as in Bahia, the paving of BR 101, which occurred at the end of the 1970s, generated real estate speculation, which, since then, has become one of the biggest problems faced by the PAs in this territory. Finally, this territory received the installation of the Angra dos Reis I and II nuclear power plants and a naval construction shipyard from Petrobras (a state-owned oil company).

Therefore, three factors converged for the current PA arrangement in this territory: real estate speculation - Cairuçu APA; remaining Atlantic Forest area - Serra da Bocaina Parna; and nuclear power plants and naval construction shipyards - Tamoios Esec.

The current situation in Serra da Bocaina Parna is complex. Part of its area is preserved by the fact that the terrain makes human occupation impossible. However, the areas that are subject to occupation are under pressure due to lack of land regularization. This situation occurs mainly in the upper part of the mountain range. On the other hand, the areas at the foot of the mountain are under pressure because of the growth of the cities, driven by real estate speculation linked to tourism (BRASIL, 2002).

The Tamoios Esec has a containment function because it protects, within a one-kilometer radius, 29 islands, islets and rocks in the Ribeira bay in Angra dos Reis (Rio de Janeiro, Brazil) and in the Ilha Grande bay, in Parati (Rio de Janeiro, Brazil) (96.64% of the PA territory is formed by marine area and 3.36% by land). Moreover, it originated as environmental compensation for the implementation of nuclear power plant projects (BRAZIL, 2006). It is the PA with the best support infrastructure and budget. Similarly, it is under pressure from tourism and fishing activities.

Regarding the Cairuçu APA, it is possible to state that its complexities are linked to its occupation by different communities: *Caiçaras* (i.e. a mixture of indigenous peoples, Whites and Blacks), *Quilombolas* (i.e. Maroons, descendants of former slaves) and indigenous peoples, as well as condominiums and summer houses. The APA still has well preserved Atlantic Forest areas due mainly to its rugged terrain; and the main pressure it suffers is the occupation on the hillsides and alluvial plains, as a result of real estate speculation arising from tourism (BRASIL, 2004).

By analyzing the interviews associated with our perceptions in the field, it is possible to state that this is a very dynamic territory due to tourism. This calling has benefits as well as problems. Benefits because the Atlantic Forest in the APA has taken back areas that were once used for agriculture because, now, the *Caiçaras* receive an income from Community Based Tourism and buy food in the city using faster means of transport (speedboats). Nonetheless, tourism has also caused situations in which *Caiçaras* sell their houses on the seashore and start occupying the slopes higher up.

The perception about Parna is that it has remained as it is so far only and exclusively because of its rugged terrain. Wherever there is occupation, nothing can be done, because, historically, the PA has been unable to prevent new settlements or even to remove the old occupants. The Esec has been kept going due to environmental compensation, despite being pressured from all sides.

The situation in this Parna is similar to the one in the Pedra Branca State Park, described by Iwama et al. (2014). The State Park lacks land title regularization, which has led to occupation pressures. Only because of its rugged geography, the situation did not get worse. In fact, land issues are chronic in several Brazilian PAs because the State does not have enough resources or agencies to manage them.

Finally, the APA is one of the most complex PAs considering all the cultural diversity that it encompasses and the good examples of empowerment activities for the local communities, besides being, to a certain extent, contingent on strong real estate speculation.

The level of transformation in the uses of the territory is directly related to the following variables: a) history of uses; b) population density; c) complementarity with economic interests; and d) the environmental conditions.

PAs in the Federal District and in its surroundings - *Cerrado* biome

Brasilia, the capital of Brazil, is fully inserted in the *Cerrado*, the PA territory in this biome. This city and the Federal District (DF) territory underwent an intense populational growth process.

In this context, since the 1980s and 1990s, the PAs emerged to organize the irregular occupation and settlements in the DF. Except for the Brasilia Parna, which was created in the 1960s, all the other PAs aim to curb urban expansion and protect water springs in the DF. At present, more than 90% of the DF's territory is affected by some type of federal PA (BRASIL, 2012).

The Brasilia Parna arrived before the entire occupation of the DF, and this fact influenced its low land conflict and legitimacy conditions in relation to the society that surrounds it. Currently, the Brasilia Parna is effectively consolidated and has well-established public uses, but the growth of the urban sprawl has led to the appearance of several pressures in its surroundings.

The Contagem Rebio arrived after the occupation aiming at limiting the urban expansion. Since this category does not require public consultation, its creation is faster and this prerogative was used to address the problems arising from the urban expansion that was not appropriate for the Federal District's Territorial Organization Plan (PDOT) (SHIRAISHI, 2011).

The Brasilia Flona is an atypical case. It was created in four non-contiguous plots of land, almost in its entirety, within the Descoberto River Watershed APA, seeking to protect important springs of this watershed. The biota it aims to protect is not typically from the *Cerrado*, since it was deforested and exotic species (*Pinus* sp. and

Eucaliptus sp.) were planted in an attempt to contain the real estate expansion at the end of the 1970s.

Nevertheless, the result of these governmental actions has given rise to an unusual landscape since exotic species have not been properly handled. To complete this unique picture, the Flona is widely used by cyclists, hikers and boy scouts for leisure, differently from what is recommended by law regarding the main uses of a Flona.

The Descoberto APA was created to organize the occupation and uses of the territory of the river basin of the DF's main water supply source, the Descoberto Lake. Over time, within the APA, more restrictive district and state PAs were also created, such as the Descoberto River Biological Reserve, Veredinha Ecological Park and Descoberto State Park (BRASIL, 2014). The APA continues facing the challenge of curbing population densification and remaining predominantly rural.

Finally, the Central Plateau APA is the most complex. It covers a very large territory with an intense urbanization process. Therefore, it must manage a territory with more than 500,000 inhabitants, 90% of whom are in urban areas and the other 10% in rural areas (BRASIL, 2012). It was created as the result of a fast and disorderly territorial growth and pressures on the remaining *Cerrado* areas and on water resources, which once again demonstrates the failure of the Federal District's territorial planning.

Based on the interviewees' experience and discourse, we observed that this territory, although with its specificities, is illustrative of several situations in Brazil: bending rules in favor of occupation and land grabbing, failures in territorial planning, and conflicts over the use of the territory.

The PA policy, if it did not arrive first, comes jointly with the engine of history. In the case of Brasilia, due to the large number of

inhabitants, it is difficult to imagine a PA transforming people's lives through the generation of income and employment, or even opportunities. That is why local participants mostly remembered them as a space for leisure.

Once again, it has been proven that pristine PAs have greater success in remaining unscathed. On the other hand, the others need to adapt to the territorial reality, because, otherwise, they are deconstructed and they have few conditions to impose non-uses of the territory. Thus, it confirms that the variables that rule the transformations in territorial uses are: a) history of uses; b) population density; and c) environmental conditions.

Would the uses of the territory be the same without the PAs? Probably not. The fact that some PAs are isolated within an immense urban network shows that if they did not exist, we would probably have one of the largest and densest urban patches in the country. This applies mainly to Parna, Rebio and Flona. For the APAs, perhaps the uses would be similar to what we have today, with the caveat that the Descoberto River APA would probably have a higher population density.

Final Remarks

After all, what are the transformations in the uses of the territory that a PA promotes? From the specific cases studied, there is no single answer. It is not possible to predict that integral protection PAs have promoted greater transformations in the uses of the territory than the sustainable use ones. Therefore, it has become clear that the territorial and historical context, environmental aspects, complementarity with economic activities and population density are determining factors for the type of transformation in the uses of the

territory. The cases studied were illustrative and they are typical of several situations in the Brazilian territory.

Based on the case studies, we emphasize that PAs that have established partnerships with economic and polluting activities are able to promote transformations in the uses of the territory.

Similarly, PAs that protect tangible goods are more effective in transforming territorial uses.

There is potential for PA management based on the manager's profile in promoting rearrangements in the power structures established in the territory. However, the more diversified the interests within the territory and the higher the population density, the more limited the chances of implementing such a proposal are.

Real estate pressure is a very common characteristic of many PAs in Brazil.

Tourism has great potential for both breaking the rules of the PAs and for ensuring their perpetuity.

Based on this overview, we state that the PAs investigated, and their respective territorial contexts show that between the rule of the PAs and the territorial reality the determining factor is the complementarity with the greatest possible number of interests. If the PA's management adopts this approach, it is likely that, even if it lacks an administrative structure, it will be possible to achieve the objectives for which it was established and affect or create uses for the territory. Otherwise, the PAs will influence some uses but not others, to varying degrees. Factors such as the history of the uses of the territory, population density and complementarity with economic interests and environmental conditions are the measure of the complexity of establishing correlations with different interests constituted in the territories.

References

BRASIL. **Lei 9.985 de 18 de julho de 2000**. Available in: <http://www.planalto.gov.br/ccivil_03/leis/L9985.htm>. Access in: Nov 20, 2019.

BRASIL. Instituto Chico Mendes de Conservação da Biodiversidade. **Plano de Manejo Parque Nacional da Serra da Bocaina**. Brasília: ICMBio, 2002. Available in: <http://www.icmbio.gov.br/parnaserradabocaina/extras/62-plano-de-manejo-e-monitorias.html>. Access in: Nov 30, 2018.

BRASIL. Instituto Chico Mendes de Conservação da Biodiversidade. **Plano de Manejo Área de Proteção Ambiental de Cairuçu**. Brasília: ICMBio, 2004. Available in: <http://www.icmbio.gov.br/portal/images/stories/plano-de-manejo/plano_de_manejo_apa_cairucu_2018_2019.pdf>. Access in: Oct 10, 2018.

BRASIL. Instituto Chico Mendes de Conservação da Biodiversidade. **Plano de Manejo Estação Ecológica de Tamoios**. Brasília: ICMBio, 2006. Available in: <http://www.icmbio.gov.br/esectamoios/destaques/16-plano-de-manejo/48-plano-de-
>. Access in: Nov 30, 2018.

BRASIL. Ministério do Meio Ambiente. Áreas Prioritárias para conservação, uso sustentável e repartição de benefícios da biodiversidade brasileira. **Portaria MMA Nº. 9, de 23 de janeiro de 2007**. Available in: < https://www.mma.gov.br/estruturas/chm/_arquivos/biodiversidade31.pdf>. Access in: Nov 20, 2019.

BRASIL. Instituto Chico Mendes de Conservação da Biodiversidade. **Plano de Manejo Área de Proteção Ambiental do Planalto Central**. Brasília: ICMBio, 2012. Available in: <http://www.icmbio.gov.br/portal/unidadesdeconservacao/biomas-brasileiros/cerrado/unidades-de-conservacao-cerrado/2059-apa-do-planalto-central>. Access in: 10 de outubro de 2018.

BRASIL. Instituto Chico Mendes de Conservação da Biodiversidade. **Plano de Manejo Área de Proteção Ambiental da Bacia do Rio Descoberto**. Brasília: ICMBio, 2014. Available in: <http://www.icmbio.gov.br/portal/unidadesdeconservacao/biomas-brasileiros/cerrado/unidades-de-conservacao-cerrado/2055-apa-da-bacia-do-rio-descoberto>. Access in: Out 10, 2018.

CONTI, J. B., FURLAN, S. A. **Geoecologia: o clima, os solos e a biota**. In: ROSS, J. L. S. Geografia do Brasil. 3ª ed. São Paulo: Editora da Universidade de São Paulo, 2000.

IWAMA, A. Y.; LIMA, F. B. de; PELLIN, A. Questão fundiária em áreas protegidas: Uma experiência no Parque Estadual da Pedra Branca (PEPB), Rio de Janeiro, Brasil. **Sociedade & Natureza**, v.26, n.1, 2014. https://doi.org/10.1590/1982-451320140106

LASCHEFSKI, K. A.; DUTRA, C.; DOULA, S. M. A legislação ambiental como foco de conflitos: uma análise a partir das representações sociais da natureza dos pequenos agricultores em Minas Gerais, Brasil. **Sociedade & Natureza**, v.24, n.3, 2012. https://doi.org/10.1590/S1982-45132012000300003

MONTEIRO, F. T.; PEREIRA, D. B.; DEL GAUDIO, R. S. Os(as) apanhadores(as) de flores e o Parque Nacional das Sempre-vivas: entre ideologias e territorialidades. **Sociedade & Natureza**, v.24, n.3, 2012. https://doi.org/10.1590/S1982-45132012000300004

NICOLAU, O. S. **Às Margens da Resex do Cassurubá no Banco dos Abrolhos: construções identitárias, práticas culturais e processos de territorialização**. Rio de Janeiro: 2014. 227 f. Tese (Doutorado em Antropologia) – Programa de Pós-Graduação em Antropologia Universidade Federal Fluminense.

SANTOS, M. **Da totalidade ao lugar**. São Paulo: Edusp, 2005.

SANTOS, M. **O espaço do cidadão**. São Paulo: Edusp, 2007.

SANCHO, A.; DEUS, J. A. S. DE. Áreas protegidas e ambientes urbanos: Novos significados e transformações associados ao fenômeno da urbanização extensiva. **Sociedade & Natureza**, v.27, n.2, 19 nov.2015. https://doi.org/10.1590/1982-451320150203

SHIRAISHI, J. C. **Conflitos ambientais em Unidades de Conservação: percepções sobre a Reserva Biológica da Contagem**. Brasília, 2011. 115 f. Dissertação (Mestrado em Desenvolvimento Sustentável) – Centro de Desenvolvimento Sustentável da Universidade de Brasília.

YIN, R. K. **Estudo de caso: planejamento e métodos**. 4ª ed. Porto Alegre: Bookman, 2010.