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Article

The Role of the Descobrimento National Park (Bahia, Brazil) for Regional Sustainability from the Perspective of Stakeholders

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ABSTRACT

Conservation Units (CUs) are spaces created to maintain the integrity of ecosystems and their biodiversity. The creation of these spaces promotes changes in environmental and cultural dynamics, which can generate conflicts. The aim of this study is to analyze the role of the Descobrimento National Park (DNP) to regional sustainability, considering socio-environmental conflicts as important indicators of the relationship between the CU and the surrounding territory. To this end, the perceptions of the members of the DNP Advisory Council were assessed through semi-structured interviews. The results show that the members' perceptions are aligned regarding biodiversity protection. However, there are conflicting views on the relationship between the CU and the indigenous communities, which could limit the cooperation of the council members and their relationship with the communities. The signing of the Term of Commitment between the Pataxó Indigenous Community and the management of the CU is highly symbolic and indicates the potential for regional cooperation.
Keywords: conservation units; protected areas; biodiversity; traditional communities; Atlantic Forest.

RESUMO

As Unidades de Conservação (UC) são espaços criados para manutenção da integridade dos ecossistemas e sua biodiversidade.A criação destes espaços promove alterações nas dinâmicas ambientais e culturais, podendo gerar conflitos. O estudo tem por objetivo analisar o papel do Parque Nacional do Descobrimento (PND) para a sustentabilidade regional, considerando os conflitos socioambientais como indicadores importantes da relação da UC com o território. Para isto, foram avaliadas as percepções dos membros do Conselho Consultivo do PND através de entrevistas semiestruturadas. Os resultados evidenciam que as percepções dos membros estão alinhadas com relação à proteção da biodiversidade. Todavia, há posicionamentos antagônicos sobre a relação da UC com as comunidades indígenas, podendo limitar a cooperação dos membros do conselho e sua relação com as comunidades. A assinatura do Termo de Compromisso entre a Comunidade Indígena Pataxó e a gestão da UC tem grande simbolismo, e indica o potencial de cooperação regional.
Palavras-chave: unidades de conservação; áreas protegidas; biodiversidade; comunidades tradicionais; Mata Atlântica.

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Introduction

In Brazil, the creation of conservation units (CU) stands out as the primary governmental action for biodiversity protection (Brasil 2011). From another perspective, there are also highly problematic issues regarding state intervention in the creation of CUs, especially in the full protection category, resulting in processes of dispossessing local populations of their land and potentially leading to socioenvironmental conflicts. Leuzinger et al. (2022) criticizes the lack of criteria in the SNUC Law for the establishment of CUs, allowing their creation to be influenced by a wide range of interests. The lack of more in-depth studies on the implementation processes of CUs is highly problematic, particularly when these areas are inhabited by traditional communities, leading to conflicts because the legal framework of the CUs does not allow for the permanent presence of these communities in officially designated parks.

Most of socio-environmental conflicts in CUs arise from processes of dispossessing communities of their land. However, conflicts of interest are not limited solely to communities fighting for territory, they also involve various social segments that have an interest in accessing the resources contained within CUs (Ferreira et al. 2016; De Araújo & De Oliveira 2017). Therefore, the management of CUs often faces scenarios of conflicting forces, which compete for territorial occupation and appropriation of resources. These conflicts include disputes over land, the energy potential of rivers, fishing resources, timber extraction, minerals, plants for cosmetics, food, and medicines production, as well as landscape interests driven by the real estate and tourism sectors, exacerbating other issues (Martins 2012).

In the framework of political ecology, environmental problems and conflicts should not be analyzed in isolation but understood within the socio-economic and political context, recognizing the significant role of social actors at different levels, from local to regional and global (Alier 2007). Vesentini (1989) emphasizes that choices about what, where, and how to preserve are not exempt from power relations and do not exclude struggles for control and use of territory.

Political ecology posits that social groups with greater economic and political power have more access to natural resources and a greater capacity for degradation than vulnerable groups, which rely on these resources as a primary source of survival (Jatobá 2006). In this approach, territory is the result of a political construction with unequal power interactions and sometimes divergent objectives, with the State being a significant actor involved in socio-environmental conflicts.

Diegues (2000) points out that the creation of full protection CUs can generate conflicts between the conservation of biodiversity and the use rights of local populations, who depend on these areas for their livelihoods, such as fishing, agriculture and extractivism. Furthermore, the creation of CUs must take into account the different cultural and social contexts, rather than imposing a single preservation model based on the separation between nature and human beings, which is based on preservationist ideologies.

To address the challenges associated with CUs, it is imperative to contemplate solutions that are both socially equitable and environmentally sustainable. These solutions should uphold constitutional principles and secure the right to access a balanced environment for both present and future generations (Leuzinger 2008; Leuzinger et al. 2022). It is worth noting that currently, CUs harbor the largest and last remaining areas of high biodiversity on the globe (Santos 2009; Bravo 2011; Costa 2013; Vieira et al. 2019;). In 2021, the United Nations published a report titled "State of the World's Indigenous Peoples," stating that indigenous peoples represent less than 5% of the world's population. However, these indigenous peoples protect approximately 80% of the planet's biodiversity (UN 2021).

CUs are spaces created and designed to contribute to nature conservation by maintaining the functionality and integrity of ecosystems, providing havens for biological species that ensure the provision of ecosystem

services, as well as cultural and economic values (Oldekop et al. 2015; Yong & Medeiros 2018; Mitchell et al. 2023). However, it is often the case that there is not widespread awareness of these benefits, even among the population that directly benefits from them.

An example of this is the significant contributions to carbon emissions reduction through avoided deforestation. In 2016, Brazilian CUs prevented the emission of a total stock of 10.5 $GtCO_2$, which is equivalent to 4.6 times the gross emission of greenhouse gases for that year. Additionally, the monetary value of the conserved carbon stock is estimated to be around BRL 130.2 billion. According to conservative estimates, this value corresponds to approximately BRL 3.9 to BRL 7.8 billion in annual conservation benefits. Studies indicate that strictly CUs show more significant percentages in reducing emissions through avoided deforestation (Young & Medeiros 2018).

Additionally, approximately 9% of the water used for human consumption in Brazil is sourced from within CUs. Moreover, National Parks with visitor control generate significant positive economic impacts through tourism. For every dollar invested by ICMBio in CUs management, seven dollars are generated in economic benefits. In 2015, 70 federal CUs received 8 million visitors, with seven million of them visiting 38 National Parks. The amount spent by these visitors in the municipalities surrounding the CUs was BRL 1.1 billion, which was injected into the regional and national economy and contributed to the creation of 43 thousand jobs. The largest direct contribution was recorded by the lodging sector, with BRL 267 million in direct sales, followed by the food sector with BRL 241 million. These values exceed the resources required for the maintenance of the CUs (Young & Medeiros 2018).

A systemic and integrated approach among interconnected CUs has enormous potential to enhance actions for biodiversity conservation and socio-biodiversity, contributing to more sustainable economic, social, and cultural development (Pellin et al. 2017). Article 26 of the SNUC (Law 9.985/2000) provides that when there are nearby, overlapping, or adjacent CUs, integrated and participatory management among them should occur (Brasil 2000).

The creation of the Mosaic of CUs of the Southernmost region of Bahia (*Mosaico de Áreas Protegidas do Extremo Sul da Bahia* - MAPES) had the following main objectives: (1) strengthen and integrate the network of protected areas in the Southernmost region of Bahia; (2) influence local and regional public policies, with greater capacity to incorporate participatory territorial management plans; (3) contribute to the creation and strengthening of ecological corridors between CUs, also aiming to strengthen indigenous communities, fishermen, *quilombola* communities, and family farmers, based on the socio-cultural values of the territory (Brasil 2012).

The MAPES encompasses public and private CUs from the different levels of the federation. In the southernmost region of Bahia, the federal conservation units are the following: the Monte Pascoal, Pau-Brasil, Abrolhos, Alto Cariri and Descobrimento National Parks, the Corumbau and Cassurubá Extractive Reserves, and the Rio dos Frades Wildlife Refuge. These CUs are distributed among the municipalities of Porto Seguro, Santa Cruz Cabrália, Prado, Alcobaça, Caravelas, Nova Viçosa and Guaratinga. In this region, buffer zones face various anthropic pressures and conflicts of interest. At the state level, among others CUs, the Caraíva-Trancoso and Coroa Vermelha Environmental Protection Areas are part of the MAPES, at the municipal level, the Recife de Fora Municipal Park is also included, along with four Private Natural Heritage Reserves: Veracel, Rio Jardim, Carroula, and Mamona (Brasil 2012). Seven Indigenous Territories (ITs) were not included in the scope of MAPES, which are: Tupinambá de Belmonte IT, Mata Medonha IT, Coroa Vermelha IT, Aldeia Velha IT, Imbiriba IT, Barra Velha IT, Águas Belas IT, and Comexatibá IT.

The territorial overlap between ITs and CUs has led to a series of socio-environmental conflicts in the southernmost region of Bahia, beginning with the creation of the Monte Pascoal National Park in 1961. There is an implicit understanding in this work that the historical context of indigenous territorial struggles in the region is much more complex and predates the creation of the DNP (Neto 2013).

Furthermore, the last decades of the 20th century were marked by profound changes in the landscape and society of the southernmost region of Bahia. These changes were directly influenced by the construction of roads, the cutting down of forests, the advance of livestock and other monocultures (Amorim & Oliveira 2007). The region was opened up to migrants from various parts of the country and to various economic projects. At the beginning of the 21st century, the Brazilian southeast remained the main investor in the region, through eucalyptus companies, tourism, shoe and sports equipment factories and educational institutions (Neto 2013).The DNP was created by an unnumbered Decree on April 20th, 1999, and approximately 19.71% of its area overlaps with the Comexatibá IT. Its creation limited indigenous access and use of the park area, as well as the presence of indigenous communities within the CU, leading to conflicts between CUs management and indigenous peoples (Silva 2018). In order to mitigate the conflictual issues, a Term of Commitment was signed between ICMBio and local indigenous leaders in 2018, which regulated the use and occupation of the area under the dual jurisdiction of the DNP and the Comexatibá IT. It defined the ethno-zoning of the overlapping area into zones of intensive use, intermediate use, and restricted use.

Considering all the historical and regional context of the DNP's existence, the aim of this study is to analyze the DNP's role in regional territorial sustainability from the perception of its stakeholders, considering socio-environmental conflicts as indicators of the relationship between the DNP and the communities living in the region.

Methodology

Study Area

The Descobrimento National Park (DNP) covers an area of 22,693.97 hectares and is in the municipality of Prado, in the southernmost region of Bahia (Figure 1). It was created by Decree on April 20, 1999, with an extension by decree on June 5, 2012. It is part of the Atlantic Forest, an important biodiversity hotspot[1] recognized internationally.

The DNP shares the characteristics of a hot and humid tropical forest. Factors such as proximity with the ocean and geomorphology contribute to humidity, and the region does not have a defined dry season. The predominant phytophysiognomy within the park is dense rainforest, with large trees (25 to 40 meters), arranged unevenly due to years of logging prior to the creation of the CU. In relation to fauna, the Management Plan indicates 688 species found in the Atlantic Forest, 181 of which are endemic (Brasil 2014).

[1]Hotspots are areas with rich biodiversity and a high level of endemism that are threatened with extinction (MYERS 1988).

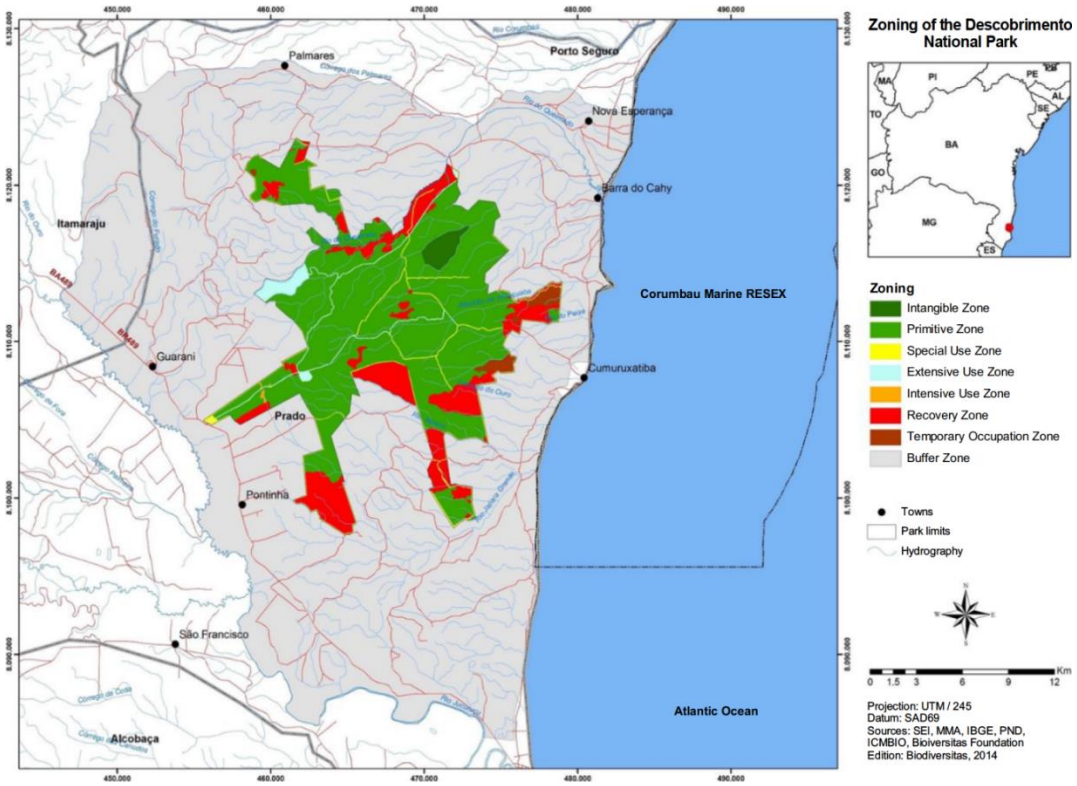

Figure 1: Zoning of the Descobrimento National Park. Source: Chico Mendes Institute for Biodiversity Conservation/Ministry of the Environment/Brazil, 2014.

Instruments, data collection and analysis method

This research was conducted with the members of the Advisory Council (AC) of the DNP between the years 2022 and 2023. The AC is composed of representatives from the following sectors: environmental public agencies at the three levels of government (3 seats); public sector in related areas at the three levels of government (5 seats); Territory Users – agribusiness sector (2 seats), mining (1 seat), family agriculture and fishing (6 seats), indigenous community (6 seats), and tourism (2 seats); collegiate and non-governmental organizations (2 seats); and educational, research, and extension institutions (2 seats). The Council is composed of members who represent various sectors of society and who also utilize the buffer zone of the CU.

A total of 17 interviews were conducted, aimed at assessing the AC members' perceptions regarding the role of the DNP for regional territorial sustainability, as well as exploring issues related to the relationship with the indigenous community and the existence of conflicts that may or have been part of the institutional context. Current issues associated with the contemporary socio-environmental crisis were also considered, such as climate change, ecosystem services, environmental policies, and the relationship between the CU and the regional society.

The semi-structured interviews consisted of 20 open-ended questions (Duarte 2004). Most of the interviews were conducted virtually, but all were done individually and recorded for later transcription. All interviewees consented to participate in the research by reading and signing the Free and Informed Consent Form.

The answers were not corrected and were transcribed verbatim as they were dictated.To ensure the anonymity of the participants, the members were be identified by the letter 'M' (for member), followed by a random number to differentiate between interviewees. Understanding that the indigenous community is part of the context of socio-environmental conflicts involving the DNP, it was necessary to differentiate the two

indigenous members interviewed. Therefore, the letters "IM" (for indigenous member) followed by a random number represent members of the Comexatibá indigenous community.

The questions were associated according to context and intentionality as follows: group A consists of questions related to specific aspects of the DNP, such as "Objectives," "Management Plan," "Values, and Threats" (see below); group B aims to capture perceptions about environmental issues, such as climate change, ecosystem services, and biodiversity; group C corresponds to the relationship between the DNP and the indigenous community, involving conflicts and ethno-zoning; and group D consists of questions aimed at understanding the contributions of the DNP to territorial sustainability, as well as the political aspects of environmental issues and the cooperation of other actors in biodiversity conservation.

Group A:

1. What are the main objectives of the DNP?

2. Do you believe that these objectives are being achieved by the management?

3. Do you consider the management plan important for the CU?

4. What are the main values that the CU currently protects?

5. Are you aware of any threats to the DNP?

Group B:

6. Do you consider biodiversity to be an important element for the life of the regional society?

7. Do you consider it important to develop management plans that include climate change?

8. Do you think that climate change is already impacting the southernmost region of Bahia?

9. What do you understand by ecosystem services?

10. Do you consider the initiative to create environmental education programs to be or should be a priority for management?

Group C:

11. Do you know the reasons for the conflict that occurred after the creation of the CU, between the indigenous community and the management?

12. Do you consider that the Commitment Term played a fundamental role in enabling a more harmonious relationship between the community and the CU and the management?

13. Are there open-ended (delicate or unresolved) situations that could lead to new conflicts?

14. In your view, is the "dual affectation" between the regimes of full protection and sustainable use appropriate?

15. Are the creation of intensive use and intermediate use zones sufficient to meet the demands of indigenous communities and the objectives of the CU?

Group D:

16. Is the responsibility for biodiversity conservation in the region solely of the federal sphere, in the case of ICMBio, or are there other institutions that would have this role?

17. How does the DNP contribute to more sustainable regional development in the southernmost region of Bahia?

18. Is the CU an isolated island in the region, or does it interact with the surrounding society?

19. Do you consider that the national political context influences the functioning of DNP? In what way?

20. In a hypothetical scenario where the DNP did not exist, how do you envision the space it occupies today in terms of vegetation cover and biodiversity?

The collected data were tabulated and systematized to form meanings about the perceptions and knowledge shared by the interviewees, establishing indicators that allow for this evaluation (Minayo 2005). The reservations and comments pointed out by the interviewees beyond the questions were also considered as analytical elements.

Results

The interviewees have the following profile: four women and thirteen men, aged between 23 and 55 years old, with varying levels of education, all residents of the region for at least four years.

The DNP Advisory Council acts as a consultation tool, assisting managers in decision-making, and contributes to the development of future strategies. Analyzing the responses related to Group A, the discourses revealed that the individuals understand the main objectives of the CU. All interviewees related the objectives of the CU to nature conservation, biodiversity, forests, or similar terminologies.

> In my understanding, the main objectives of the DNP are the preservation of the park, right?! The protection of its surroundings, the preservation of the communities directly linked to the park. Finally, the implementation of policies that can engage the community and society in understanding the aspects of the park regarding visitation. So, from there, create an awareness of preserving the unit (M 12).

> Preserving the forest, biodiversity (M 14).

Here, the interviewees express a positive view regarding the achievement of the DNP´s objectives but emphasize the need for greater community involvement.

> I believe that the path being taken is a correct management approach. Obviously, improvements are necessary and adjustments along the way, right? Because every manager who comes in has a very personal view of each topic that is addressed, right? The Park Council is a very important tool for ensuring that this management is truly shared, where interests must be addressed, and obviously the main interest is the protection of the DNP, which always must be at the forefront (M 12).

> [The objectives] are being achieved, but they could be improved if they work together with the communities, knowing how they should work, how it should be done. Despite all the knowledge they have, our elders who have always taken care of our forest, they didn't need any schooling to keep everything beautiful standing (IM 11).

Regarding the Management Plan, everyone agreed that it is important for the proper functioning of the CU, but more than 50% of the interviewees showed little or no depth about the instrument. The main values considered by the interviewees that the DNP protects were natural values (biodiversity) and social values (significance for indigenous groups).

Regarding threats, 12% stated that they are not aware of any threats to the CU, while the remaining 88% identified various types of threats, such as real estate speculation, hunting, and timber extraction.

> Threats do exist. The economic issue has a lot of influence, especially in real estate speculation. In this matter, even regarding the loss of identity, let's say, the negative influence on the culture of indigenous peoples, right?! We see the quantity of wooden handicrafts being produced, and that's a risk, but if they were produced only with

> trees that fell for some reason, right? And if they were to take advantage of it, but we know that doesn't happen (M 13).

> Residential and commercial development, hunting, agriculture, and black pepper (M 3).

Regarding Group B, the aim was to capture the members' understanding of environmental issues. All interviewees understand the importance of biodiversity according to their individual perspectives.

> Without it, we wouldn't even be here, so biodiversity really is important for everything. These protected areas serve as a nursery, right? A great nursery for species to leave there and continue reproducing, continuing to exist in nature. Each one has its role, right? (M 5).

> Certainly, biodiversity is what provides us with all that we have and live, right? Exactly, when integrated and preserved, this entire ecosystem will ensure future generations. It's necessary to understand that preservation is crucial for the preservation of the human species, not just for the sake of preservation itself, because someone found it cool, it's preserving the flower, right? It's preservation for survival (M 12).

Regarding the theme of climate change, 35% of the interviewees provided brief and concise responses about the importance of including this issue in the management planning; the remaining 65% demonstrated a greater ability to argue, showing clear signs of a better understanding of the topic.

> It's necessary because we're experiencing it, right? We are going through a process of climate change, and that affects the fauna, flora, and humans (M 5).
>
> I know that such a climate change, in geological times, is very brief, but in human times, it's not, so we must be realistic and make plans to face these changes because we won't be able to fix this in one or two years, right? Unfortunately, not (M 8).

> Yes. It's a reality we face, especially concerning microclimates, right? Everyone needs to work on this, and we here are no different. Indeed, starting from that old saying: "better safe than sorry," right? We must take advantage of what we have here in terms of preserved areas and see how to strengthen this area more so that we don't have problems with heating, from these climate changes (M 13).

When asked if climate change was already impacting the southernmost region of Bahia, only 12% were unable to give examples of what these impacts might be, while the remaining 88% were able to list at least one example of climate change in the region. Some examples of climate change mentioned were:

> Examples of this were the drought of 2015, the cataclysm of 2021, coastal erosion, more frequent cosmopolitan species, and invasive species (M 15).

> We suffer a lot from the issue of rainfall, right? End of the year and those floods, right, that have been happening in the region. In the indigenous community, regarding agriculture, regarding access to the city, all this situation (IM 10).

> Rains with much more volume, with much higher destructive power, things that didn't happen in our region. Here it used to rain, but the rains weren't so strong, they

> didn't cause so much damage. Then there are disasters, there were floods here for two consecutive years (M 2).

Within Group B, regarding ecosystem services, 71% were unable to indicate the meaning of this concept. Among those who mentioned these services, we highlight:

> They are services provided by the ecosystem, right? It includes climate regulation and water-related issues. Stuff like that, resources, right, which are directly available from nature, such as raw materials and food (M 7).

> They are the services generated by ecosystems to promote human well-being, right? (M 2).

Regarding initiatives for creating Environmental Education (EE) programs, 94% of participants agreed that this aspect should be considered by management, while only 6% stated that it "should not be a priority but an important component".

> Environmental Education is important, right? Raising awareness and considering it as a fundamental aspect in their management (M 1).

> Environmental Education is a cornerstone of preservation and should be a priority for management (M 3).

The relationship with the indigenous community and socio-environmental conflicts were grouped in Group C. Approximately 29% of respondents stated that they were not aware of the conflict between the Pataxó indigenous community and the management of the DNP. Divergent perceptions about the conflict were also evident. Some members understand that the conflicts arise from territorial disputes, but in their narratives, there was no preference for one side as right or wrong, as shown in the examples below:

> The reasons for these conflicts were related to territory (M 7).

> Land demarcation. Essentially, it's a matter of indigenous land demarcation, delineating where the park begins and where the village starts (M 6).

> Talking to the indigenous people, they say they want to protect the forest, and ICMBio also wants to protect it. Both sides fought for the same cause (M 4).

On the other hand, in other responses, there was a tendency to label the indigenous community as invaders, with questioning about the legitimacy of indigenous rights to the use and occupation of the area.

> The invasions by pseudo-indigenous groups, right? Because many people nowadays want to declare themselves as indigenous, either to gain access to the DNP or to invade both the land and private properties (M 12).

> The indigenous people considered themselves the owners of the area when the DNP was created, right? So, there was conflict for a long time, including even the kidnapping of the park manager, right? Conflicts, wildfires. So, the unit didn't see the indigenous people as an integral part of the CU; they were seen as outside the

> unit, invading it and causing a lot of conflict. At the time, I questioned why, instead of creating a park, they didn't establish an Extractive Reserve instead? (M 5).

The responses provided by indigenous people are extremely relevant to the discussions of this study because they offer direct narratives from the actors involved in the conflict.

> In 2002, we carried out the reoccupation of the park. It was prohibited for indigenous people to remain in the park area, so the Alegria Nova Village carried out the first reoccupation, and then we from the region carried out further occupations. Today, we have six indigenous communities within the park, and it was difficult. Yes, because of IBAMA, right? People would arrive, threaten us, pull out their guns, saying they would arrest us, and the eviction process humiliated our people a lot. We couldn't plant; leaders faced a lot of persecution. We couldn't even visit, right? Nothing, nothing. They wanted to, and then they gave us an eviction notice, but we managed to overturn this eviction notice through our connections. And then, every new chief who came in was just trouble for us, right? They would meet with the farmers and then come and threaten us. And then, where we carried out the first occupation, we did the second occupation at the headquarters. We had to sit down with ICMBio, FUNAI, and the indigenous community, and we made this Commitment Agreement, which has been the turning point in the relationship between the indigenous community and the park management, right? The first manager was Hibiscus[2], then Daisy, and now Sunflower, right? And thankfully, things are going well, but before this commitment agreement, which I talk to them about, this commitment agreement arose from a conflict, thankfully things are going well today (IM 10).

> As I mentioned, for our communities, it was like when IBAMA used to come to our community, my parents and the elders would run away in fear, so our healthy coexistence was only recently established, but it wasn't pleasant in the past. They only focused on their side without respecting ours (IM 11).

When the council members were asked whether the Commitment Agreement helped alleviate the conflictive relationship, only 18% said they were not familiar with this document, while the others revealed that the Agreement was of fundamental importance and contributed to ensuring the indigenous community more secure conditions.

> Yes, it provided security for the indigenous community. They also felt secure knowing that it was on paper, and they could indeed claim their rights (M 7).

> The agreement brought a certain tranquility to resolve these conflicts, reducing the temperature of the conflicts. From what we hear and have information about, the agreement brought peace for the relationship to progress. An important milestone for managing these conflicts (M 12).

On the other hand, the following response demonstrates a clear criticism of the Commitment Agreement when the respondent, agreeing that the document contributed to a harmonious relationship, judges there to be a lack of enforcement in restricting hunting. However, the Commitment Agreement provides for hunting

[2] The names of the mentioned managers were replaced with names of flowers.

restrictions and promotes alternatives to this practice, such as the installation of breeding facilities for game species.

> Once you say that people can do whatever they want, the relationship becomes harmonious, right? When you don't impose on the other that they will have to give in a bit and stop doing some things. And then, for example, hunting. "Oh, but hunting is part of their culture." Alright, but when the last animal is extinct there, won't they have to change their culture? Why not start working on this cultural change now and preserve some of the remaining species there? So, as I say, it's not a solution, it's a stopgap measure. When everything there is extinct, we will all lose out, not just them who will have to undergo a cultural change. Why not promote this change now? (M 13).

Regarding the open or delicate issues that may trigger new conflicts, various concerns were highlighted, such as the resistance of the farmers surrounding the DNP area, the undefined land tenure issue, and the end of the Commitment Agreement itself:

> It could be, because the farmers, they don't participate (M2).

> There is land demarcation that is not fully defined (M 5).

> I think this agreement could end at any time. Some people from ICMBio are against it, and some indigenous people also abuse it. Just take one mistake from them, it gets to the timber, and the agreement is over; this agreement and everything that comes with it, this peace that has lasted since 2018 (M 4).

> I don't think so, unless we don't follow the agreement, right? Both of us indigenous people today, we have an agreement, we must follow what's in the agreement, so both of us indigenous people and the park as well, right? The park management and us will follow what's there, like shared management. Now, if they do something that doesn't, please us, then this relationship could become strained, right? (IM 10).

Regarding dual affectation and ethnic zoning, there were distinct perceptions among the interviewees. Many respondents expressed agreement, with only 18% opposed.

> So, this dual affectation agreement, Sunflower even asked to remove it, right? She put dual protection now, right? She said that dual affectation is something that affects us too, right? So, it means it's affecting, in fact, dual protection is helping to protect (IM 10).

> In my opinion, yes, if management is done responsibly, in a more transparent manner, I think so (M 5).

> I'm against it (M 3).

> Taking into consideration what the SNUC dictates regarding conservation categories, it states, for example, that in this category, there cannot be anything inside. For research and conservation purposes only. So, in my view, dual affectation isn't as appealing when it comes to integral protection units. But as for how to minimize and resolve conflicts, it was this commitment agreement that solved the problem, but if we're really talking, in my opinion, we know it's not the ideal solution, right? (M 9).

Regarding ethnic zoning, 18% of the interviewees believe that the zones of intensive and intermediate use are not sufficient to meet the demands of indigenous villages, and 24% did not know how to respond, while the other 58% believe that they are sufficient:

> Yes, it's enough, right? We determined the number of families. The family that inhabits that area is indeed sufficient. Indeed, we have been working hard on sustainability, right?

> We have been fighting for the demarcation of the territory for this purpose. That we want to preserve. If we manage to demarcate the territory, for sure, that area where the indigenous people are living will become forest, right? So that we can practice our rituals, our culture. (IM 10)

> I don't think they're sufficient. I believe there needs to be a larger area for the community to utilize (M11).

> And if it's for subsistence, right? How can you "Man, you can't cut it down!"? The guy is living off that, otherwise he won't eat, he'll die. So, you must understand the whole scenario (M 1).

> I don't think they're sufficient to meet the demands. I believe I don't have a place to speak on this, but I imagine not (M 8).

Finally, the last set of questions (Group D) aimed to propose reflections on the contributions of the DNP in the context of territorial sustainability. Regarding the responsibility for conserving biodiversity in the region, all members affirmed that other institutions from different spheres are also responsible, indicating self-responsibility for conservation.

> I see that it's not just the responsibility of ICMBio. The responsibility lies with the civil community, with all of us. It's the responsibility of the municipality where the unit is located or of the municipalities because it extends to the surrounding areas of other municipalities. It should involve other conservation entities as well (M 9).

> I think everyone must be involved, those of us around, those inside the park, civil society, government agencies, they all must have this responsibility because it's everyone's. It's a common good, so everyone should be aware that it's necessary to contribute, even if it's just a small portion, to the conservation of the DNP (M 12).

Regarding the contributions of the DNP to development on more sustainable bases (question 17), 88% indicated similar aspects associated with natural values – biodiversity and significant potential with tourism and economic activities – while only 12% cannot perceive how the DNP contributes beyond the provision of ecosystem services.

> The park is a heritage of our country, of our state. It is one of the few remnants of the Atlantic Forest, attracting curious visitors and researchers from all over the world. A tourist hub with immense potential that brings wealth to the entire region (M 2).

> Very important for the preservation of biodiversity (M 16).

> [...] a reference, [...] a space that harbors species that no longer exist elsewhere, preserving a biome that has been severely degraded, and mainly the benefits of this

> area for the region, both at an ecological and social level, due to the presence of communities and their culture. And, in terms of the economy, we're talking about a place that receives people, and this boosts the economy (M 7).

> It contributes not only to the Southernmost region of Bahia but also to Brazil, right? The last remnants of the Atlantic Forest that we have, the little bit that's left, right? (IM 10).

Regarding the question of whether the DNP is an "isolated island," there were three levels of perception among the council members. The first level (12%) agrees that the CU is isolated from the surroundings; the second level (24%) considers that there is some limited cooperation or interaction; while the third level (64%) considers that the DNP is quite integrated with the region. Some statements are representative of these three approaches:

> I think it's isolated. I've said this before; I think there should be more presence in the communities, in the municipalities. And then I don't know if it's a lack of people, a lack of resources, for this to happen, you know, to participate more in the actions alongside the municipality's department. Hey, let's go together! Let's interact together! Let's monitor together, I don't see that (M 1).

> It's not an isolated island, but this relationship occurs in a very limited way through formal meeting contacts; maybe if there were closer contact, it might facilitate (M 8).

> It interacts with the surrounding society; this happens with visits to the park, meetings, the entire community around is part of the Council or is invited to go, even the most conflicting ones, right, are invited to participate in these meetings (M 5).

> Regarding the political context and its impact on environmental issues and specifically on the proper functioning of Brazilian CUs (Question 19), 6% stated that this interference is irrelevant. The others provided various examples of this relationship, establishing political comparisons with the government.

> Certainly, I think the previous government didn't help at all, only setbacks. But, with what's currently happening, it's rescuing everything we lost in the last four years (IM 10).

> No doubt, right? Perhaps the most dangerous weapon for a CU is not a chainsaw but a pen, wielded by those in power. Depending on the political tide, it can set back conservation policies for decades (M 8).

> I believe so, right? We've seen what we, the indigenous community, experienced in the past government and what we're experiencing now, right? There's been a change, right, in terms of park preservation, there's been better support in terms of park conservation policies, right? (IM 11).

In a hypothetical scenario where the area corresponding to the DNP was not a CU, the interviewees were asked how they imagine that area would be currently. All interviewees stated that there would be no standing forest. Some examples given by the interviewees:

> "Oh, my goodness! Everything would be gone! The place would be covered by eucalyptus, pasture, or coffee. This is our fate (M 2).

> As it happened with the Atlantic Forest, many species we have there today and the vegetation itself, especially most valuable trees, would have already been suppressed there (M17).

> Hypothetical and catastrophic, there wouldn't be a forest standing, let alone the animals (M8).

> It would be a farm, just like the surroundings (M4).

> There would be eucalyptus plantations, perhaps the mining company would have a larger area. That area would have been gone a long time ago, right? There wouldn't be any vegetation, fauna, or flora left. And that area would be almost 90% eucalyptus, with the remaining 10% being the mining company (M5).

> There wouldn't be anything left! (M 14).

> I don't think there was anything left, there was no more forest, because when it was Bralanda [Timber Company Brasil Holanda S.A.], we saw that people were really devastating it (IM 10).

> If this Park hadn't been created, everything would surely have been destroyed there, unless it was an IT [...] then it would help protect, right? Because they wouldn't have intervened since it was within the IT, but if it weren't for the indigenous land and if it weren't for the park, it would have been over already. Today, there is only forest exactly where the indigenous people are preserving it; where there is no indigenous territory, everything has already been destroyed (IM 11).

It is evident that there are different views on certain topics, and these divergences may indicate potential conflicting issues and impact the way the DNP relates to the region. Therefore, through discussions, it is proposed to give meaning by critically reflecting on these perceptions.

Discussion

Specific Aspects of the DNP

Article 4 of the SNUC law (Law N° 9.985/2000) outlines the objectives of the CUs, which include: protecting endangered species; preserving natural landscapes of remarkable scenic beauty; restoring degraded ecosystems; among others. In addition to objectives strictly associated with natural values, the SNUC, in its article 4, also aims to protect natural resources essential for the livelihoods of traditional populations, respecting and valuing their knowledge, culture, and promoting them socially and economically (Brasil 2002).

Therefore, in essence, the CU must fulfill the objectives that justified its creation. The responses of the interviewees regarding the objectives and values that the DNP protects align with what is established in the law. The importance of shared management was identified in the speeches. This conception also aligns with the guidelines of the SNUC, which encourage local populations and private organizations to establish and manage CUs within the national system, as well as the structuring of Advisory or Deliberative Councils.

Shared management implies horizontal collaboration, shared responsibility, and work, contributing to a more precise and strategic decision-making process capable of achieving a common goal (Mota 2023). Thus,

the shared management of CUs has enormous potential to strengthen conservation efforts. In this context, the DNP council emphasizes the importance of societal participation in contributing to CU management. It is intentional that the seats are grouped by sectors that are directly related to the CU. The studies by Kindel et al. (2018) demonstrate the relevance of the Council in the elaboration of management instruments, with emphasis on the development of the Strategic Plan for land regularization, as exemplified by the Itapeva State Park in Rio Grande do Sul.

In relation to the SNUC, it is established that CUs must have a Management Plan. However, approximately 78% of federal and state CUs do not have this instrument (Souza 2012; Costa 2013). Even though the DNP represents the select group of CUs that have a Management Plan, the lack of knowledge among council members about this instrument is a limiting factor for decision-making (Mota 2023). Furthermore, the Management Plan of the DNP presents inaccurate or outdated information (Pontes Junior et al. 2022). It should be emphasized that the initiative to update the Management Plan of the DNP is currently underway.

Another issue indicated in this study was the existence of threats to the CUs, with hunting being a frequent response among the interviewees. In line with what is found in the literature, hunting is a threat that is part of the context of most CUs. An example of this is the study by Teixeira & Venticinque (2014), which analyzed the main weaknesses of a set of CU in Potiguar, Rio Grande do Norte State, where they express that the main threats are linked to the illegal collection of natural resources, fishing, hunting, and animal trafficking.

Environmental Issues

Environmental problems are not discussed in isolation. It is necessary to include the role they play in the social context, which in turn can be influenced by economic, political, and cultural aspects. Different perceptions can contribute to the construction of environmental planning, resource utilization, and conflict resolution (Hoeffel et al. 2008).

The loss of biodiversity is a global concern. Data published by WWF in the Living Planet Report 2022 (WWF 2022) indicate that since 1970 there has been an average decline of 69% in populations of species from different groups of vertebrates (mammals, birds, reptiles, and fish). In the same report, the loss of biodiversity is associated with the phenomenon of climate change. Both issues share underlying causes and should not be treated separately.

The members' speeches revealed an understanding of biodiversity based on strictly biological associations, stemming from their own experiences and emotions. Typically, the concept of biodiversity is understood in isolation (Buijs et al. 2008). Therefore, a more systemic and integrated view of biodiversity can help build critical thinking about environmental issues and assist in decision-making.

In Brazil, climate change is already causing significant environmental effects. In addition to biological changes, natural phenomena are being recorded with an unusual frequency (Artaxo 2014). The increase in temperature has been occurring since the 1970s, and current trends are not encouraging. Climate projections estimate that there is more than a 50% chance that between 2021 and 2040, the global temperature increase will reach or exceed 1.5°C (IPCC 2021). Although CUs are considered important conservation strategies, they are not exempt from the implications caused by climate change (Araújo et al. 2011). Therefore, it is essential to include the issue of climate change in management planning.

Another concept widely disseminated nowadays is the provision of ecosystem services, categorized as supporting, provisioning, regulating, and cultural services (MEA 2005). Although 71% of the interviewees

initially couldn't express the meaning of this concept, shortly after a brief explanation, the respondents were able to indicate that the CU in question considers the provision of ecosystem services.

Environmental education enables environmental issues to be considered and discussed, aiming to promote environmental citizenship (Sammarco 2009). CUs are privileged spaces for developing EE actions that articulate conservation objectives for social transformation (Valenti et al. 2012). The importance of creating EE programs is understood by the council members, but the actions of the DNP are still in the early stages, which can be justified by the broad and complex management demands that fill the CU's action agenda, which has a limited number of staff members.

The DNP's Relationship with the Indigenous Community

Conservation policies without real interaction with human communities are exclusionary, fragile, and create complex challenges to overcome. In these conservation models, the human species represents a risk factor to ecosystems. However, in a broader context, it is common to normalize rational economic actors with individual motivations that unsustainably exploit natural resources, without any capacity to prevent collective environmental tragedies (Lauriola 2011). In the present study, there is a clear tendency in the interviews towards criticism of the way of life of indigenous communities and incisive questioning about the originality and rights of these peoples, concepts based on preservationist ideologies and the lack of political and social recognition of indigenous peoples and the legitimacy of their struggles. This, in deeper discussions, may lead to the roots of environmental racism, making CUs socially more accepted alternatives compared to ITs.

After many debates about the role of human groups in *in situ* environmental conservation, there has been a strengthening of movements that seek a more positive valuation of this relationship. However, there is still the maintenance of preservationist ideologies opposed to this approach. Exactly as expressed in the issue of dual affectation, even though only 18% of the councilors disagreed with this proposal, the arguments used to validate this thinking stemmed from preservationist premises, that is, advocating for the regime of full protection. The literature indicates that excessively restrictive management is inadequate for most contexts found in CUs around the world, and such a condition does not meet conservation principles (Barreto Filho 2006; Guerrero 2020).

The overlap of CUs and ITs has caused territorial conflicts in Brazil. On one side, there are policies advocating for the full preservation of nature, while on the other side, there are territorial claims and cultural resistance from indigenous peoples. In Brazil, data provided by Guerrero (2020) indicates that in 69.6% of fully protected CUs, there is some form of territorial overlap, with National Parks showing the highest percentage of recorded conflicts. Indigenous peoples and traditional communities are the most affected human groups. Such conflicts have also occurred surrounding the implementation of National Parks in the southernmost region of Bahia. Examples include conflicts arising from the creation of the Monte Pascoal National Park and the Descobrimento National Park, both involving indigenous communities of the Pataxó ethnicity (Lauriola 2011).

Studies indicate that the most preserved forest areas in the Amazon are associated with indigenous lands, where indigenous peoples maintain more sustainable relationships with the forest Paiva & Baptista (2017)analyzed ITs and settlements located in the region defined as the "Brazilian Amazon," finding that ITs mitigate deforestation trends in areas outside CUs, with a native vegetation preservation rate within ITs exceeding 95%. In the southernmost region of Bahia, the existence of spatial overlap between CUs and ITs is a significant indication of this relationship. Recent findings indicate that formalizing the ownership of IT has

improved forest outcomes in the Brazilian Atlantic Forest compared to IT without ownership. However, it is problematic that the most recent IT to be homologated was in 2012 (Benzeev et al. 2023).

The legal frameworks used to address territorial overlap issues converge primarily when the IT is in the homologation phase. In jurisprudence, the decree creating the DNP, signed by the President of the Republic, takes precedence over the demarcation ordinance of the Comexatibá IT, which was signed by the Minister of Justice. On their part, indigenous peoples base their territorial claims on the Constitution, which guarantees that regardless of the time taken to identify, demarcate, and homologate ITs, any act or fact aimed at possessing lands traditionally occupied by indigenous peoples should be nullified, meaning it lacks legal validity (Lauriola 2011). Currently, the official status of recognition for the Comexatiba IT (Cahy-Pequi) is identified/approved by FUNAI.

Territorial overlap issues bring into discussion constitutional references. The creation of the SNUC aimed to regulate Article 225 of the Brazil's Federal Constitution (CF), which establishes the right to an ecologically balanced environment. Article 231, on the other hand, guarantees the rights of indigenous peoples, respecting their social organization, customs, and beliefs. International legislation, such as the International Labour Organization (ILO) Convention 169, also addresses the recognition and protection of the social, cultural, and spiritual values and practices of indigenous and tribal peoples. Madeira et al. (2015) reiterates that in cases of "collision of fundamental rights," it is suggested that neither party has their right entirely disregarded, even if in some cases it may be unfeasible for both, to be fully accommodated.

The joint development of the Commitment Agreement and the proposal for inter-institutional shared management have been the strategies adopted thus far in addressing territorial overlap issues, as seen in the examples of the Barra Velha IT and Monte Pascoal National Park, as well as the Inãwebohonha IT and Araguaia National Park. Lauriola (2011) asserts that there are no true success stories regarding these strategies and considers the need for evaluating these experiences.

Considering Brazilian history, Guerrero (2020) highlights the weaknesses in the implementation of "commitment agreements." In the past, when CUs were managed by IBAMA, only two of these agreements were ever signed, and these agendas were then deemed "forgotten." Later, they were reopened when legislation established ICMBio. Nevertheless, the lack of models and guidelines for drafting the agreements hindered and delayed the process. In 2015, 53 demands were identified in fully protected CUs with commitments to the terms, yet only eight of these were in the process of implementation (Madeira et al. 2015). Between 2017 and 2018, another ten agreements were signed (Guerrero 2020).

Another weakness signaled by Guerrero (2020) was the resistance imposed by sectors opposing the signing of the agreements, which hindered the process without transparent justifications for doing so. In summary, although the challenges are complex, the implementation of the Commitment Agreement between DNP management and the Pataxó Indigenous Community has shown positive outcomes as an alternative to resolving conflictive issues. This was observed in the statements of indigenous members and the DNP management team, which even considers that the presence of villages at the edges of the park helps deter access by individuals interested in illegal activities such as logging and hunting. Thus, indigenous villages have contributed to delineating the boundaries of the park more clearly. Supporting this analysis, on March 30, 2023, another agreement was signed, this time an Addendum, which extended the previous Commitment Agreement (N° 02/2018).

In this sense, the DNP can be considered a reference regarding the adoption of Commitment Agreements in resolving conflicts between CUs and traditional peoples. Participatory management allows involved actors to participate in decisions, positively highlighting the representation that the indigenous community holds

within the DNP council. Therefore, despite lingering issues that may fuel new conflicts, there is a constant effort to maintain horizontal relationships, with new directions indicating more favorable perspectives.

Contributions of the DNP to Territorial Sustainability

Starting from the premise that conservation responsibility is not solely confined to a specific entity, it is understood that socio-environmental responsibilities are dispersed across different spheres and levels. In this sense, the pooling of efforts through partnerships, enabling spaces for dialogue, with a more participatory management, has enormous potential to contribute to regional territorial sustainability.

The benefits of participatory management include expanding the competencies and skills of those involved with the CU, strengthening the management of its tools, optimizing actions, facilitating exchanges of experiences and perspectives, as well as serving to minimize conflicts (May 2015). In essence, the southernmost region of Bahia has unique potential to weave the threads of a diverse network of actors working for regional conservation, while also promoting more effective integration with the DNP, which obviously lacks the capacity for unilateral efforts. As members of the Council have made explicit, there needs to be synergy among sectors encompassing municipal secretariats (tourism and environment), state agencies like the Institute of Environment and Water Resources (INEMA), the private sector, as well as schools, universities, local and traditional communities, and the respective CUs that are part of the MAPES.

The valuation of CU is built through knowledge, direct experiences with the natural environment they protect, a sense of belonging, and an understanding of the benefits they generate. Even though biodiversity is an intrinsic value, the economic benefits generated by CUs are highly significant for the national economy. Young & Medeiros (2018) monetized the benefits related to extractive and fishing activities, tourism and public use, forest carbon, water resources and soils, as well as the generation of municipal tax revenues, proving that the economic benefits generated by CU outweigh the investments required for their management.

As a result of its extensive preserved forest area and its capacity to prevent deforestation within it, the main contribution of the DNP is the reduction of greenhouse gas emissions, thus contributing to the mitigation of the effects of climate change, in addition to providing ecosystem services. As an example, the water-related benefits influenced by the existence of CUs in Brazil amount to approximately BRL 59.8 billion annually (Young & Medeiros 2018).

The authors further note that the lack of investment in environmental management undermines the continuity of services provided by environmental agencies such as ICMBio and IBAMA (Young & Medeiros 2018). In this sense, the political context may or may not consider conservation actions as a government priority, which could result in budget cuts, dismantling of related public policies, and significant regression. Recalling the emphatic discourse regarding the political influence on conservation: "Perhaps the most dangerous weapon for the CU is not a chainsaw, but a pen wielded by those in power."

When asked to reflect on how the CUs would be if it did not exist, the unanimous discourse was that the native forest would be replaced by pasture areas, monoculture, among other purposes. Medeiros & Young (2011) assert that in the scenario of the CUs not existing, the trajectory of deforestation would be limited only by legal barriers, meaning that the remaining forest would likely be equivalent to the minimum required by the forest code (Law 12.651/ 2012).

Therefore, CUs are efficient strategies that can ensure the protection and maintenance of natural, cultural, social, and economic values, especially when they maintain solid relationships with the stakeholders residing in the surrounding areas. In contexts like that of DNP, a thorough analysis of creation criteria is suggested, ensuring that the protection regime aligns with the sustainability principles advocated in this study. In addition,

other issues should be explored in greater depth in future research, such as analyzing the effects of the Cooperation Agreement on biodiversity conservation, the livelihoods of indigenous people and the effectiveness of the instruments contained in the agreement.

Conclusion

The results highlight that the Advisory Council members' perceptions are aligned regarding the importance of the DNP for biodiversity protection. However, there are conflicting views concerning the relationship that should exist between the CU and the indigenous community, which may limit the Council's cooperation in CU management, resulting in low participation and efficiency, as well as discouraging managers from participatory processes.

It is important to emphasize that the historical context of the creation and implementation of CUs is complex, and there are still many challenges to be overcome. Although the dichotomy between environmentalist ideologies results in divergences that drive socio-environmental conflicts, CUs are essential for achieving the principles of sustainability.

It is necessary to expose the idea that CUs are a hindrance to economic development or that they are dispensable, simply returning the area to traditional communities, when in fact, they provide enormous economic and social benefits in Brazil and around the world. Additionally, of course, they provide various ecosystem services essential to human well-being. Like CUs, ITs have great potential to ensure such benefits when it comes to cultural and social values, but the major challenge currently is the Indigenous Land demarcation system, which is stagnant.

As previously stated, the southernmost region of Bahia is characterized by ecosystems of rich biodiversity and scenic beauty, which evoke various types of interests in land use. Thus, the implementation of CUs is the primary way to curb the growing exploitation of natural resources in the region. When conservation goals are aligned with the protection and respect for traditional livelihoods, and there is also involvement of the local community, it creates a pathway for resolving territorial conflicts in CUs, where theoretically the interests do not overlap but connect, akin to a symbiotic relationship.

The renewal of the Commitment Agreement between the Pataxó Comexatibá Indigenous Community and the management of DNP carries great symbolism, as it indicates that mutual interests are being addressed. It can be concluded that the perspectives between the current park management and members of the indigenous community are aligned regarding environmental co-responsibility in nature conservation and the importance of the Commitment Agreement, making it one of the few successful initiatives in Brazil. Despite the disagreement regarding the use of the Commitment Agreement, the results indicate positive progress in resolving conflicts. Future research could deeply evaluate the feasibility of the Commitment Agreement.

In summary, the DNP has great potential to contribute to the territorial sustainability of the southernmost region of Bahia, protecting natural, cultural, and social values, as well as indirect economic benefits. However, in practice, there needs to be a process of mutual recognition and collaboration between the regional society and the DNP management.

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