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Legal and Management of Urban Permanent Preservation Areas: Analysis of the Bálsamo Watershed, Campo Grande, MS

Gestão Jurídico-Ambiental das Áreas de Preservação Permanente Urbanas: Análise da Microbacia do Bálsamo, Campo Grande, MS

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Abstract

This study aims to analyze the effectiveness of the legal protection of urban Permanent Preservation Areas (APPs), which perform important environmental functions. The discussion is structured around the conflicts between fundamental rights arising from anthropic occupation in protected and environmentally fragile areas. The conformity of the APPs along the Bálsamo Stream, in Campo Grande, Mato Grosso do Sul, Brazil, with environmental legislation was investigated through the assessment of documents issued between 2019 and 2023 by the municipal environmental agency related to the management of these APPs. Furthermore, the legal instruments applied were examined, and gaps and opportunities for the improvement of environmental public policies were identified. The results indicated the insufficiency of the legal protection granted to urban APPs and the need for effective measures. The study showed that the environmental agency sought to safeguard the fundamental right to an ecologically balanced environment in the face of socio-environmental challenges, recognizing the autonomous and independent legal value of the environmental function of properties in urban APPs. However, social issues affected the effectiveness of the agency's actions. Local public policies must include specific mechanisms to ensure the environmental functions of APPs in urban areas, in order to prevent irregular occupations, reconcile the social and environmental functions of properties, and require the restoration of degraded or improperly used APPs. Expanding and strengthening the environmental agency is also necessary for the effective legal protection of urban APPs, aiming to guarantee the right to a balanced environment and the conservation, improvement, and recovery of environmental quality in the urban environment.

Keywords: Fundamental Rights. Environmental Public Policies. Urban Forests. Degraded Areas. Forest Law.

Resumo

Este estudo tem como objetivo analisar a efetividade da proteção jurídica das áreas de preservação permanente (APPs) urbanas, que desempenham importantes funções ambientais. Adotou-se como eixo de discussão os conflitos entre direitos fundamentais gerados pela ocupação antrópica em áreas protegidas e ambientalmente frágeis. Foi investigada a conformidade das APPs do Córrego Bálsamo, em Campo Grande, MS, com a

legislação ambiental, mediante a avaliação dos documentos dos anos 2019 a 2023 expedidos pelo órgão ambiental municipal relacionados à gestão dessas APPs. Ainda, foram analisados os instrumentos legais aplicados e identificadas lacunas e oportunidades de aperfeiçoamento das políticas públicas ambientais. Os resultados apontaram a insuficiência da proteção jurídica conferida às APPs urbanas e a necessidade de medidas efetivas. O estudo revelou que o órgão ambiental objetivou assegurar o direito fundamental ao meio ambiente ecologicamente equilibrado frente aos desafios socioambientais, reconhecendo o valor jurídico autônomo e independente da função ambiental das propriedades situadas em APPs urbanas. Contudo, os problemas sociais afetaram a eficácia da atuação do órgão ambiental. As políticas públicas locais devem contemplar mecanismos específicos para assegurar as funções ambientais das APPs no espaço urbano, de modo a evitar ocupações irregulares, compatibilizar as funções social e ambiental das propriedades e exigir a recuperação das APPs degradadas ou com uso inadequado. A ampliação e o fortalecimento do órgão ambiental também são necessários para a efetividade da proteção jurídica das APPs urbanas, visando garantir o direito ao meio ambiente equilibrado e a conservação, melhoria e recuperação da qualidade ambiental no ambiente urbano.

Palavras-chave: Direitos Fundamentais. Políticas Públicas Ambientais. Florestas Urbanas. Áreas Degradadas. Código Florestal.

1 Introduction

In Brazil, demographic census data indicate that 87.4% of the population resides in urban areas (IBGE, 2022). The accelerated urbanization process resulted in the disorderly growth of Brazilian cities with the intense transformation of their spaces, generating negative impacts on the environment (Barbosa; Félix, 2020; Campos; Branco, 2021). This scenario reflects the absence of territorial planning and historical contexts of socioeconomic inequality, which intensified conflicts related to the disorderly occupation of urban space (Rosin; Teixeira, 2013), a factor responsible for environmental degradation (Campos; Branco, 2021; Locatelli; Angioletti, 2022). The proliferation of buildings and the uncontrolled use of natural resources caused by the human occupation of water resource banks increase risks and precariousness (Locatelli; Angioletti, 2022), revealing the tension between constitutionally guaranteed rights.

The marginal strips of watercourses, as well as the areas surrounding springs and veredas (palm swamps), even when located in the urban environment, are examples of spaces protected by the Brazilian Forest Law, denominated Permanent Preservation Areas (APPs). Whether covered or not by native vegetation, they perform essential ecological functions for the preservation of water resources, landscape, geological stability, and biodiversity, facilitate the gene flow of fauna and flora, protect the soil, and ensure the human populations' well-being (Brasil, 2012). In practice, the efficiency of marginal areas of water bodies depends, among other factors, on the width and state of conservation of the vegetation, with scientific consensus regarding the need to maintain them as close

as possible to their natural state (Silva *et al*., 2011). Thus, tion establishes that intervention and vegetation suppression in these areas can only occur in exceptional situations of public utility, social interest, or low environmental impact listed in the law (Brasil, 2012). This restrictive legal regime of use and occupation is justified by the magnitude of the environmental functions performed by APPs, including in the urban area.

The irregular occupation of APPs has occurred to the detriment of the ecologically balanced environment (Dantas, 2017), which, alongside the right to housing, is recognized as a fundamental right by the Federal Constitution of 1988 and constitutes the foundation for ensuring humanity's evolutionary potential, needing to be protected for the benefit of present and future generations (Oliveira; Maia, 2019). This situation also highlights the debate on the social and environmental functions of property. Although the right to property must be exercised in accordance with its economic, social, and environmental functions simultaneously (Dantas, 2017), social and environmental interests do not always coincide due to their distinct natures (Araújo, 2017).

In the sphere of urban planning, although green spaces are recognized as providers of essential ecosystem services for achieving the Sustainable Development Goals of the 2030 Agenda, in Brazil, urban vegetation cover in APPs, parks, squares, conservation units, and other green areas corresponds to only 6.9% of the total urban area, while in Mato Grosso do Sul this index is 6.6% (Hirye *et al*., 2024). Such data reveal the difficulty providing effectiveness to the current legislation in addressing urban challenges (Rosin; Teixeira, 2013). In this context, considering the problems caused by human interventions in APPs and the competence of municipalities in environmental protection and promoting adequate territorial planning, through the planning and control of the use and occupation of urban soil (Brasil, 1988), it is essential that local entities analyze their panorama and implement effective actions to respond to the identified challenges (Freitas; Silva; Guedes, 2022).

Given this scenario, the general objective of this study was to evaluate the effectiveness of the legal and environmental management of APPs located in urban areas. To achieve this, the specific objectives were to investigate the conformity of the APPs of the Bálsamo watershed, located in Campo Grande - MS, with the current environmental legislation; analyze the legal instruments applied in the management of these APPs; and identify gaps and opportunities for improving environmental public policies.

2 Material and Methods

2.1 Characterization of the study area

Campo Grande, capital of the Mato Grosso do Sul state, covers a territorial area of 8,082.98 km² and has a population exceeding 898 thousand inhabitants, of which nearly 99% are concentrated in the urban zone (IBGE, 2022). Predominantly located within the Paraná River Basin and partially in the Paraguay River Basin, it is inserted in the Cerrado biome, featuring the following vegetation physiognomies: cerrado senso restrito (stricto sensu cerrado), cerrado denso (dense cerrado), cerradão (cerrado woodland), vereda (palm swamp), buritizal (buriti palm groves), flooded grassland, flooded gallery forest, riparian forest, and cultivated pasture fields (Campo Grande, 2008, 2023).

The city is the most afforested capital in the country (IBGE, 2022) and is internationally recognized for its urban forest management, having been part of the Tree Cities of the World network for six consecutive years (Arbor Day Foundation, 2025). It possesses specific legislation for arboreal protection in its urban area, named the Urban Forest Master Plan (Plano Diretor de Arborização Urbana), a municipal urban planning instrument regulated by Complementary Law Nº 184/2011 (Campo Grande, 2011).

Campo Grande's urban expansion has resulted in environmental impacts on its hydrographic basins, such as suppression of native vegetation cover and occupation of Permanent Preservation Areas (APPs), soil impermeabilization, erosion and sedimentation, water pollution, reduced infiltration of stormwater, and recurrent floods and inundations (Diniz; Silva; Andrade, 2021; Barbosa; Félix, 2020; Barbosa; Silva, 2015).

With 33 streams and one river located within the urban perimeter, the city's hydrographic network is subdivided into 11 watersheds: Anhanduí, Coqueiro, Bandeira, Bálsamo, Gameleira, Imbirussu, Lagoa, Lageado, Prosa, Ribeirão Botas, and Segredo (Campo Grande, 2023). According to recent studies, the green areas dedicated to environmental protection occupy an extension of 15.21% of the city's total urban area (UFMS, 2024). These areas encompass the Special Zones of Environmental Interest (ZEIAs) established by the Urban Environmental Development Master Plan of Campo Grande (PDDUA), instituted by Complementary Law No. 341/2018. This law designated ZEIA 1 as the protected permanent preservation areas, covered or not by native vegetation, with relevant environmental functions, located in the urban area, according to the demarcations contained

in the PDDUA's annex map (Campo Grande, 2018).

The Bálsamo watershed is located in the central-southern region of Campo Grande's urban zone, encompassing the neighborhoods of Centenário, Alves Pereira, Pioneiro, Universitário, Rita Vieira, and Tiradentes (Goehr *et al.*, 2015), and presents a vegetation cover percentage of 22% relative to its area (Campo Grande, 2008). The delimitation of ZEIA 1 along the Bálsamo Stream was defined by PDDUA (Figure 1).

Figure 1 – Delimitation of ZEIA 1 in the Bálsamo watershed, according to the PDDUA

Source: Prefeitura Municipal de Campo Grande (2024).

The Bálsamo outfall has an area of 13.27 km² and a perimeter of 16.28 km. It has an elongated shape, with a low circularity index of 0.51, indicating a lower propensity for flooding under regular rainfall conditions. Regarding the relief, it has an average slope of 0.0064 m/m, allowing for moderate surface runoff. With a drainage density of 1.36 km/km², the basin is characterized as moderately drained, and in relation to the stream order, it presents a slightly rugged relief (Goehr *et al.*, 2015).

In terms of water body classification, the Bálsamo Stream is classified as Class 2, and its Water Quality Index (IQA) varied from good to fair in 2023, given the partial coverage of the public sewage network, which favors groundwater contamination by septic tanks and cesspools, as well as unauthorized sewage connections to the stormwater drainage network (Campo Grande, 2023).

2.2 Data Collection

This study employs a quali-quantitative approach, with descriptive and exploratory aims. Data were obtained through consultation of official documents, such as current environmental legislation

and documents issued by municipal public agencies, and through a bibliographic review, which examined the existing literature on the legal protection of urban APPs.

To achieve the objectives, an analysis of the environmental management of the APPs in the Bálsamo watershed was carried out, which was the subject of judicial discussion. The Public Prosecutor's Office of Mato Grosso do Sul filed a public civil action against the municipality of Campo Grande and private individuals, due to environmental damages to the APPs of the Bálsamo Stream. By virtue of a final and unappealable judicial decision, the municipality was condemned, among other obligations, to perform a diagnosis from the source to the mouth of the watercourse to verify the properties that had damage within the APP, identifying the respective owners and possessors, ascertaining the extent of this damage, as well as obtaining the repair of the damages to the APPs against those responsible (Mato Grosso do Sul, 2022). To comply with the court decision, the municipal environmental agency carried out inspections of all properties bordering the waterway. The information obtained from these actions was selected as the basis for the analysis developed in this study.

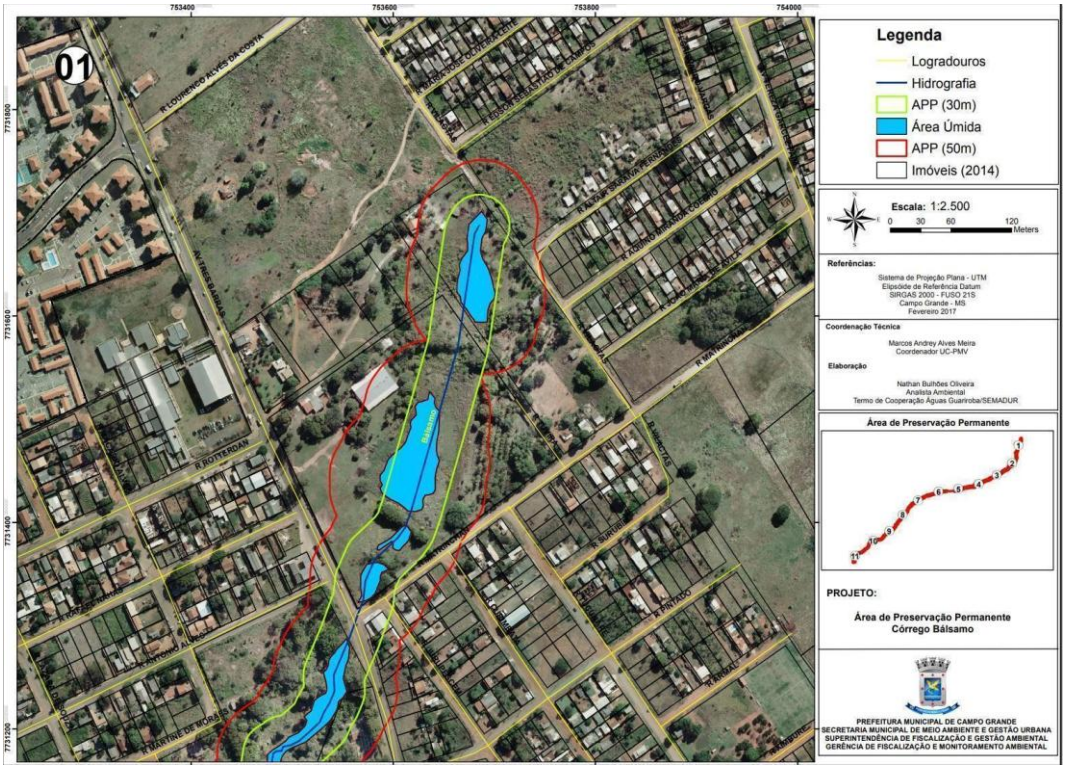
The Campo Grande environmental agency was requested to provide documents resulting from the inspections of the Bálsamo Stream APPs issued between 2019 and 2023. These documents included technical reports, opinions, notices, notifications, and administrative penalties, consistent with the municipal inspection systematization, which segmented the extent of the watercourse into 11 sections (Figure 2). This segmentation was done so that environmental inspections could be carried out in stages, from the source to the mouth, aiming to comply with the judicial decision in reference.

Figure 2 – Bálsamo Stream and its 11 inspected sections

Source: Prefeitura Municipal de Campo Grande (2019).

The collected documents are related to the inspection of properties located entirely or partially within an APP or ZEIA 1, according to the municipality's real estate registry. Protected areas were considered to be up to 30 meters from the marginal strips of the Bálsamo Stream and 50 meters from the areas surrounding springs and veredas, as per current legislation (Brasil, 2012; Campo Grande, 2018). These records included the in loco survey of the vegetation and soil occupation characteristics of the lots and a graphic representation for each section with the delimitations of the properties and the APP strips (Figure 3).

Figure 3 – Section 01 of the Bálsamo Stream, with the delimitation of the inspected properties



Source: Prefeitura Municipal de Campo Grande (2019).

The extracted data were organized according to the following variables: category of the inspected properties (public lots being those owned by the municipality of Campo Grande, and private ones belonging to private individuals); conformity of the APPs with current environmental legislation, considering the assessment of vegetation integrity and soil occupation carried out at the time of the inspection; and corresponding measures taken by the municipal environmental agency.

The discussion of the results was based on the fundamental rights established in the national legal system.

3 Results and Discussion

The results of the inspections of the Bálsamo Stream APPs were structured and described

according to the analysis criteria used in this study (Figure 4).

Figure 4 – Results of the inspections of properties located in the Bálsamo Stream APPs

Property Category	Properties	APPs in Conformity	APPs in Non-Conformity	Environmental Assessment	Measures by the Municipal Environmental Agency
Private	173	63 **(36,4%)**	110 **(63,6%)**	Absence of native vegetation and/or building in na APP.	Request for PRADA (Project for the Recovery of Degraded Areas) and issuance of a Notification, Infraction Notice, and Fine, based on municipal Law No. 2.909/1992
Public	37	5 **(13,5%)**	32 **(86,5%)**	20 properties with an informal urban settlement/building and without environmental feasibility for regularization, requiring the recovery of the APP.	Submission to the municipal attorney's office for measures and a request for APP recovery after occupant relocation.
				4 properties with an informal urban settlement/building and with potential for regularization.	Submission to the municipal attorney's office for measures.
				5 properties with an informal urban settlement/building, without an assessment regarding regularization feasibility, requiring the recovery of the APP.	Submission to the municipal attorney's office for measures and e request for APP recovery after occupant relocation..
				3 properties requiring APP recovery.	Request for PRADA (Project for the Recovery of Degraded Areas) to the municipal public works department.
Unidentified	5	1 **(20%)**	4 **(80%)**	With an informal urban settlement/building, with 1 property having no feasibility for regularization.	Submission to the municipal real estate registry for the identification of property owners and other data.
Canalized Section.	1	-	-	Public utility intervention, authorized by the Forest Code.	-
Total	**216**	**69 (31,9%)**	**146 (67,6%)**		

Source: Own elaboration based on documents from the Campo Grande City Hall (2019, 2020, 2021, 2022, 2023).

From the documents collected, it was also possible to verify the effectiveness of the instruments applied to the non-conforming APPs aimed at the repair of environmental degradation, using the following variables: presentation of a Project for the Recovery of Degraded Areas (PRADA) by the owners and re-evaluation of the case by the municipal environmental agency, based on Decree No. 14.751/2021 (Figure 5).

Figure 5 – Effectiveness of the municipal environmental agency measures related to APPs in non-conformity with the legislation.

Property Category	Property Count	PRADAs presented	Reevaluations pursuant to Decree Nº 14.751/2021	Review of the ZEIA 1	Loss of Ecological Function
Public	32	-	-	-	-
Private	110	4 (**3.64%**)	20 (**18,18%**)	11 (**1%**)	9 (**8,18%**)
Total	142	4 (**2.82%**)	20 (**14.08%**)	11 (**7.75%**)	9 (**634%**)

Source: Own elaboration based on documents from the Campo Grande City Hall (2019, 2020, 2021, 2022, 2023).

Indeed, the application of various legal instruments for the environmental evaluation of the APPs was verified, notably Federal Law No. 12.651/2012, known as the Forest Code (Código Florestal), which defines and delimits the extent of the APPs (Brasil, 2012); the PDDUA, which established the definition of ZEIA 1 corresponding to the APP provided for in the Forest Code, with its own delimitation in the urban environment contained in the annex to the law (Campo Grande, 2018), and its respective regulation, Decree No. 14.751/2021. In cases where there was divergence between the delimitations defined in the national and municipal legislations, the most protective rule for the environment was applied, meaning the one with the greatest extent of the legally protected area.

The exercise of administrative police power was noted through the application of administrative sanction, with the issuance of a Notification, Infraction Notice and Fine due to the characterization of the administrative infraction described as "environmental pollution", provided for in municipal Law Nº 2.909/1992 (Campo Grande, 1992). However, the absence of specific administrative infractions for legally protected areas was observed, especially regarding unauthorized intervention and environmental degradation.

The results highlighted that the dynamics of urban APPs occupation is a major challenge for urban environmental management, despite the obstacles varying according to the property category (public or private). The common point is that there is an intrinsic relationship between the social issue and environmental degradation, confirming that the irregular occupation of

urban space has caused damage to the environment (Barbosa; Félix, 2020; Campos; Branco, 2021; Locatelli; Angioletti, 2022; Rosin; Teixeira, 2013).

The non-compliance of APPs located on private properties demonstrates the conflict between the rights to property and housing, provided for in arts. 5th and 6th, and the right to an ecologically balanced environment, established in art. 225, all of the Federal Constitution (Rosin; Teixeira, 2013). At this point, the right to a healthy environment is integrated into fundamental rights, according to Brazilian legislation and international standards, which elevate it to the category of fundamental nature and a human right (Borges *et al*., 2022). The application of this right reinforces other human rights, mainly the right to life and housing (Kerisit; Davis, 2023). According to Alexy (2008), the conflict between these rights does not allow for the absolute prevalence of one over the other, requiring the application of the principle of proportionality, with an analysis of adequacy, necessity, and proportionality in the strict sense. Thus, the tension must be resolved by weighing theconflicting rights, based on the particularities of the specific case (Dantas, 2017), guaranteeing the broad protection and effectiveness of these rights by the public authorities, preserving the essential core of each one (Oliveira; Maia, 2019).

In this study, in the context of the conflict of constitutional fundamental rights, it was noted that the environmental agency sought to ensure the prevalence of environmental protection - and the relevant environmental functions performed by the APPs - over the rights to property and housing, reinforcing that the fundamental right to an ecologically balanced environment belongs to the entire community, better serving the public interest.

The irregular occupations in APP corroborated the discussion about the coexistence of the social and environmental functions of property. Although they share a common basis and are equally relevant, the focus of the environmental function is the environment protection, while the social function concerns the socioeconomic conditions of the individual and the collectivity (Araújo, 2017). Even though the environmental agency did not directly address this theme, measures were taken to demand the restoration of the degraded APPs from the property owners. It is understood that the proper and independent legal value of the environmental function of the property was reaffirmed.

Thus, the determination for property owners to restore the APPs evaluated in non-conformity with the legislation confirmed that, in urban areas, the right to property has been relativized by the need to protect the APPs. It was validated that the decharacterization of these protected areas, regardless of when it occurred, imposes their regularization and repair based on the measures required by the environmental agency (Barcellos, 2023). This measure also

reinforced the constitutional command that conducts and activities harmful to the environment subject the offenders to the obligation to repair the damages caused (Brasil, 1988), although there is no express provision in the municipal legislation, which proved deficient in specific mechanisms to impose the restoration of degraded APPs.

The small percentage of non-compliant private properties that were the subject of project submissions for their restoration can be justified by the high cost of restoring degraded APPs (Silva *et al*., 2011) and because public policies for native vegetation restoration were elaborated to promote restoration at the scale of rural property, according to land, regulatory, and technical issues, and not at the landscape scale in the urban environment (Lopes; Chiavari, 2024). Specific regulation may be an important mechanism for large-scale urban APP restoration.

In public properties, the non-conformity of APPs and the process of informal occupation of the stream banks unveiled serious socioeconomic and environmental problems in these localities, which can be classified as poverty enclaves (Rosin; Teixeira, 2013). Thus, the social and environmental issues were shown to be intrinsically linked, with social problems impacting the effectiveness of environmental control agencies. The irregular occupation of legally protected spaces, besides compromising the inherent environmental functions of APPs, which are responsible for valuable ecosystem services in urban areas, exposes the vulnerable population to risk areas. Furthermore, the absence of information with the environmental agency about eventual regularization, relocation of occupants, or repossession of properties whose APPs were occupied evidences that the notification of the other involved agencies was insufficient. Therefore, the municipal entity was inefficient in addressing these urban challenges.

The absence of administrative sanctions for non-compliance in public properties, resulting in none of them being the subject of a recovery project, demonstrates the importance of exercising administrative police power for the recovery of degraded areas. It was therefore found that there was less efficiency in the environmental management of public urban APPs compared to private ones, evidencing a less effective performance of the municipal entity in the protection of these environmentally sensitive areas.

On the other hand, the results expressed the peculiarities of municipal management regarding the delimitation of urban APPs with the application of Decree No. 14.751/2021, which regulated the environmental zones established by the PDDUA. The review of the demarcations of ZEIA 1 (equivalent to the Forest Code APP in the urban area) was provided for, justified by the technical limitation in the publication of the maps (Campo Grande, 2021). For the review and correction of these delimitations, the issue must be resolved by the

environmental agency, according to a terms of reference, which presents indicators for the characterization of the APP (Campo Grande, 2021). In addition to the evaluation of the area's occupation time, its characteristics, and its relationship with the performance of the APPs' environmental functions, various criteria related to water resource preservation are analyzed, such as whether the water body is canalized, rectified, and whether there is pavement, bare soil, or vegetation; to geological stability and soil protection, such as terrain slope and the possibility of undermining and collapse of buildings and the occurrence of erosive processes; to biodiversity and gene flow of flora and fauna, such as connectivity and proximity to other protected areas; and to ensuring the well-being of the human population, especially regarding the region's susceptibility to floods or risk situations (Campo Grande, 2021).

After applying these indicators to some properties in the studied area, the environmental agency concluded that there was an error in the delimitation of part of the ZEIA 1 of the Bálsamo Stream and found that there was a loss of environmental function in some APPs, demonstrating that occupations in urban APPs can cause irreversible damage to their ecological functions.

These results point to the inefficiency of the public power in the management of urban APPs and indicate the need for a more integrated and effective environmental control at the municipal level, especially considering that Campo Grande is a reference in urban afforestation management, but was not efficient in enforcing the Forest Code. Urban planning must, therefore, consider the complexity of the socio-environmental issues involved, with the integration of public policies to encompass the adequate organization of urban space and environmental protection, to safeguard the quality of life in urban areas (Rosin; Teixeira, 2013).

To this end, is importante the inclusion of APP protection in the municipal urban trees protection legislation, which is regulated by Complementary Law Nº 184/2011 in Campo Grande. The typification of exclusive infractions for acts harmful to urban APPs, including the omission in the restoration of degraded APPs when determined by the environmental authority, and the strengthening of the inspection body, with the increase of qualified civil servants via public tender, can confer more efficiency to urban environmental management.

Furthermore, preventive actions by the public power regarding APPs in public areas, such as the implementation of linear parks along the strips of watercourses in contiguous public properties, have the capacity to provide green and leisure areas for the local population. These measures re-establish the proprieties' social function, prevent the formation of informal urban nuclei in risk areas, and guarantee the protection of urban APPs and the performance of their environmental functions.

Future studies can deepen the analysis of the advances and challenges of the public power in the management of urban APPs, especially regarding the continuity of administrative processes related to the penalties applied; the effectiveness of PRADA for the restoration of degraded APPs; the inefficiency of public policies for access to decent housing, which drive the irregular occupation of environmentally fragile areas; and the level of environmental degradation of occupied APPs in the urban environment, aiming to evaluate how unauthorized intervention impacts the environmental functions of urban APPs.

4 Conclusion

The current legal protection conferred on urban APPs has been insufficient to safeguard their preservation. From the analysis of the environmental management of the Bálsamo watershed in Campo Grande, it was found that most APPs are not in conformity with the current environmental legislation, despite the use of various instruments provided for in national and municipal legislation.

The study of this territorial segment revealed that the environmental agency, in the context of the collision of fundamental rights involved, aimed to ensure the primacy of the right to an ecologically balanced environment enshrined in the Federal Constitution, notwithstanding the socio-environmental challenges found in the study area. At the municipal level, the fundamental right to the environment was reaffirmed with the recognition of the autonomous and independent legal value of the environmental function of properties located in urban APPs.

The need for improvement and integration of public policies aimed at urban planning and environmental management of APPs was identified, recognizing the interconnection between social and environmental issues, considering that social problems affect the performance of environmental control agencies and, consequently, the effectiveness regarding the protection of these environmentally fragile areas in urban spaces.

Indeed, public policies at the local level should include specific mechanisms to ensure the environmental functions of APPs in urban areas, establishing the integration of all sectors involved.

The inclusion of the protection of APPs in Complementary Law No. 184/2011, which protects local urban trees, and the implementation of linear parks on contiguous public properties can provide greater effectiveness to the legal and environmental management of these areas, in order to prevent irregular occupations, reconcile the social and environmental functions of properties, and require the recovery of degraded APPs or those with inappropriate use. Furthermore, expanding and strengthening environmental control agencies are crucial

measures for preserving these areas, ensuring the fundamental right to a balanced environment and the conservation, improvement, and recovery of environmental quality in the urban space.

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