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Article

Environmental Management and Environmental Education: The Role of the Advisory Board in a State Conservation Unit

Kássia Aparecida De Oliveira Pereira[1], Marcos Vinicius Campelo Junior[2], Maria Helena Da Silva Andrade[3], Rogério Rodrigues Faria[4]

[1] Master's Degree in Science Education. Federal University of Mato Grosso do Sul. ORCID: 0000-0001-8351-010X. Email: kassiapereira19871@gmail.com

[2] PhD in Science Education. Professor at the State University of Mato Grosso do Sul. ORCID: 0000-0001-6501-644X. Email: campelogeografia@gmail.com

[3] PhD in Ecology. Professor at the Federal University of Mato Grosso do Sul. ORCID: 0000-0001-7252-4020. Email: helena.andrade@ufms.br

[4] PhD in Ecology. Professor at the Federal University of Mato Grosso do Sul. ORCID: 0000-0003-0944-2190. Email: rodrigues.faria@ufms.br

ABSTRACT

Environmental Management, Management Plans, and Environmental Education play necessary roles in the existence and permanence of Conservation Units (CUs), which are created to mitigate environmental problems. From this perspective, Environmental Education (EE) demonstrates that the more the community is aware of environmental issues, the better individual and collective action will be in the face of discussions and discourses that arise in social and political dynamics. Playing an important role in the process of seeking viable and necessary solutions, the advisory council joins forces to face existing socio-environmental challenges, being one of the ways to exercise participatory environmental management in the CUs. Its objective is to discuss Environmental Management strategies focused on educational processes within the scope of the Matas do Segredo State Park (PEMS). Through the categorization of the topics addressed in the advisory council meetings and the triangulation of this data, the minutes of the meetings held at PEMS were analyzed, aiming to understand the strategies adopted by Environmental Management for the dissemination of Environmental Education in the conservation area. This research highlighted the dynamics and performance of the PEMS advisory board, in addition to elucidating that even in the face of the challenges faced by the conservation unit, the park has great potential to consolidate itself as a sustainable educational space, thus helping to train citizens engaged in the protection and conservation of the environment.
Keywords: participatory management; protected areas; non-formal education; Mato Grosso do Sul; state park.

RESUMO

A Gestão Ambiental, o Plano de Manejo e a Educação Ambiental desempenham papéis necessários para a existência e permanência das Unidades de Conservação (UCs), que são criadas para minorar as problemáticas ambientais. Nessa perspectiva, a Educação Ambiental (EA) demonstra que quanto mais a coletividade estiver inteirada da problemática ambiental, melhor será a atuação individual e coletiva frente as discussões e discursos que se apresentam nas dinâmicas sociais e políticas. Desempenhando um papel importante no processo de busca por soluções viáveis e necessárias, o conselho consultivo vem para somar forças frente aos desafios socioambientais existentes, sendo uma das formas de se exercer a gestão ambiental participativa nas UCs. Tem por objetivo discutir as estratégias de Gestão Ambiental voltadas para os processos educativos no âmbito do Parque Estadual Matas do Segredo (PEMS). Por meio da categorização dos temas abordados nas reuniões do conselho consultivo e da triangulação desses dados, foi feita a análise das atas de reuniões ocorridas no PEMS, almejando compreender as estratégias adotadas pela Gestão Ambiental para a disseminação da Educação Ambiental na UC. A presente pesquisa evidenciou a dinâmica e atuação do conselho consultivo do PEMS, além de elucidar que mesmo diante dos desafios enfrentados pela UC, o parque tem grande potencial para se

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consolidar como um espaço educador sustentável, auxiliando deste modo, na formação de cidadãos engajados na proteção e conservação do meio ambiente.
Palavras-chave: gestão participativa; áreas protegidas; educação não-formal; Mato Grosso do Sul; parque estadual.

Introduction

The primary function of Conservation Units (UCs) is to protect ecosystems, biological species, and natural resources for present and future generations. The first CUs, inspired by the American park model, aimed mainly at preserving the scenic beauty of untouched areas (Ribeiro 2005; Witt et al. 2013). Yellowstone National Park in the United States, created in 1872, is considered a milestone in this process (Palma 2004; Andrade & Lima 2016).

In Brazil, the first conservation area was Itatiaia National Park, created in 1937 (Ribeiro, 2005; Palma, 2004; Simão, 2014). Initially, the creation of conservation units in the country was marked by a lack of technical and scientific criteria, often motivated by political interests or scenic beauty, without considering the presence of traditional communities and the vulnerability of endangered species (Andrade & Lima 2016).

The view of conservation units has evolved over time. Since the 1970s, concern for biodiversity conservation and the need to integrate local communities into the management of conservation units have gained prominence (Ribeiro 2005; Simão 2014; Faria & Pires 2013; Maganhotto et al. 2014). The International Union for Conservation of Nature (IUCN) played a key role in this process, influencing the definition of management categories for conservation units in Brazil (Pereira et al. 2022; Santana et al. 2020).

In Brazil, Law No. 9,985/2000, which established the SNUC (National System of Conservation Units), represented a milestone in the management of conservation units. The SNUC divides conservation units into two groups: Integral Protection Units and Sustainable Use Units, each with specific categories and distinct management objectives (Campelo Junior et al. 2020; Campelo Junior 2021; Andrade & Lima 2016; Ribeiro 2005).

In urban areas, conservation units play an essential role in biodiversity conservation, serving as refuges for fauna and flora amid the concrete of cities, protecting representative samples of ecosystems, such as the Cerrado, and sheltering species that would otherwise have difficulty surviving in the city. They act as green islands, serving as habitats for various species, including some that are threatened with extinction. Urban conservation units also contribute to the quality of life of the population by protecting springs and water resources, regulating the climate, and providing green areas for recreation.

Urban conservation areas face challenges such as pressure from urban expansion, habitat fragmentation, lack of connectivity with other green areas, insufficient technical staff, and lack of management plans, even though these are mandatory (Marques & Nucci 2007). Therefore, efficient management of urban conservation units, with adequate management plans and the participation of the internal and surrounding communities, is essential to ensure the long-term conservation of these areas.

In order to build more sustainable and resilient cities that value biodiversity and provide a better quality of life for living beings, society must play an active role in the environmental management of these spaces. In addition to the different types and uses of conservation units, with the expansion of the urbanization process, we have the existence of urban conservation units, which similarly require the strengthening of social participation and the search for innovative solutions to the challenges of nature conservation.

The implementation of the SNUC has brought advances in the participatory management of conservation units, with the creation of Advisory Councils (Santana et al. 2020; Faria & Pires 2013; Bresolin et al. 2010; Loureiro & Cunha 2008; Ribeiro 2005). However, the effectiveness of these Councils still faces

challenges, such as the lack of training for councilors, conflicts of interest (particularly those related to the real estate sector), and the difficulty in reconciling nature conservation with the needs of local communities (Ribeiro 2005; Bresolin et al. 2010; Faria & Pires 2013). According to Campelo Junior (2021), conservation units have great potential to become sustainable educational spaces, and for this to happen, it is essential that their management be democratic and participatory, ensuring community involvement in decision-making (Witt et al. 2013).

Conservation units are legally protected territorial spaces that are of great importance for biodiversity conservation and the promotion of environmental education (Faria & Pires 2013). However, environmental education (EE) is a broad and diverse field, with different schools of thought guiding its practices (Rodrigues et al. 2018). Therefore, the articulation between EE in CUs requires a solid theoretical foundation that underpins educational practices and ensures their effectiveness in promoting conservation and sustainability.

In summary, the various theoretical and methodological currents in EE can be subdivided or aggregated according to the level of analysis. Thus, Conservationist EE focuses on raising awareness of nature, seeking to promote understanding and appreciation of biodiversity (Layrargues and Lima 2014). In contrast, Critical EA examines the socioeconomic and political roots of environmental problems, with the aim of driving social transformation and environmental justice, as highlighted by Valenti et al. (2012) and Quintas (2008). Emancipatory EA, in turn, emphasizes the active participation of society and the empowerment of communities in environmental management, aiming at autonomy and the construction of sustainable societies, as pointed out by Rodrigues et al. (2018) and Loureiro and Cunha (2008). In addition to these approaches, Transversal EA is also considered, which aims to integrate environmental issues into all areas of knowledge and sectors of society, according to Rodrigues et al. (2018).

Education in the environmental management process connects EA to the participatory management of conservation units, encouraging social control and joint decision-making between managers and the community, as observed by Witt et al. (2013) and Valenti et al. (2012). Therefore, the EA approach to be disseminated in CUs will depend on several factors, such as the characteristics of the location, management objectives, target audience, and socio-environmental context. However, it is important that the approach practiced is consistent with the principles of biodiversity conservation, socio-environmental sustainability, and environmental justice. We emphasize that the training of environmental educators, managers, and other actors working in CUs is crucial for the quality of educational practices (Campelo Junior et al. 2020). These professionals must have a solid theoretical background in the different currents of EE, in addition to specific knowledge about the area in which they work.

Critical Environmental Education (CEE) is a relevant tool for strengthening participatory management in conservation units (Loureiro et al. 2013; Loureiro & Cunha 2008), as it raises awareness among different social actors about the importance of nature conservation, stimulating dialogue and the construction of joint solutions to the challenges of environmental management (Loureiro et al. 2013; Bresolin et al. 2010). In this context, the objective of this study is to analyze and discuss environmental management strategies focused on educational processes in a conservation area in the state of Mato Grosso do Sul, the Matas do Segredo State Park.

Methodology

Study Area

In Campo Grande, Mato Grosso do Sul, there are two state conservation units: one is the Prosa State Park (PEP), created by State Decree No. 10,783/2002, which covers different phytophysiognomies of the

Cerrado and is home to the headwaters of the Prosa Stream. The other is Matas do Segredo State Park (PEMS).

The history of PEMS is linked to the arrival of Japanese immigrants in Brazil and the growing urbanization of the city. The area where the park is located today was acquired in 1917 by Japanese immigrants from the province of Okinawa (Palma 2004). Initially called Chácara Santa Inês, the area underwent several mergers of small farms until it became the park as it is today (IMASUL 2021).

The name "Matas do Segredo" came from the way residents referred to the forest, which was popularly known as "Mata do Segredo II" due to its proximity to a Brazilian Army reserve area called "Segredo I," where the headwaters of the Segredo Stream are also located (IMASUL 2021).

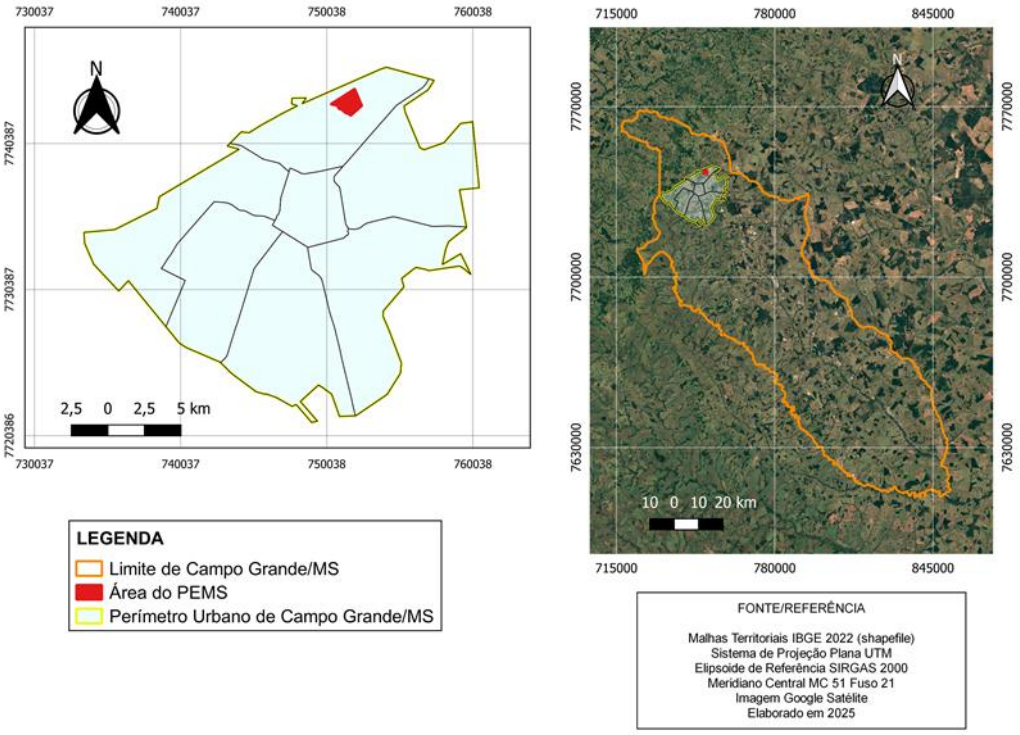

Figure 1 – Boundary of Matas do Segredo State Park. Source: prepared by the authors (2025).

The PEMS was officially created on June 5, 2000, by State Decree No. 9,935, with the aim of protecting the remaining Cerrado and the headwaters of the Segredo Stream. The park covers an area of 177.58 hectares, representing an important natural refuge amid the urban expansion of Campo Grande (Melo et al. 2016).

Data Collection and Analysis

The methodological procedures involved in the construction of this research, in the context of investigating the role and performance of participatory environmental management in the process of disseminating Environmental Education in the Conservation Unit, Matas do Segredo State Park (PEMS), were based on a qualitative approach. According to Chizzotti (2006), qualitative research serves several research trends. To this end, it is necessary to delimit and formulate the problem, so that the research problem comes from an inductive process, which is defined and delimited in the exploration of the ecological and social contexts from which the research is conducted, as well as from the continuous observation and analysis of the object of this research.

The minutes of the PEMS Advisory Council meetings for the 2019-2021 triennium (during this three-year period, only one regular meeting of the Advisory Council was held) and the 2021-2023 triennium

(five regular meetings and one extraordinary meeting of the PEMS Advisory Council were held). It was impossible to analyze the minutes for the 2024-2025 biennium due to the absence of Advisory Council meetings in 2024, as the Advisory Council Renewal Ordinance for this biennium had not been published by the date of completion of this research. It should be noted that the Advisory Council is one of the ways in which environmental management is exercised.

Access to the council minutes was granted via a request for scientific research, duly filed by the authors at the Mato Grosso do Sul Institute of the Environment (IMASUL). The minutes are documents that record the council's discussions, decisions, and actions, providing an overview of the management of the conservation area. The recent update of the PEMS Management Plan (IMASUL 2021) was used to triangulate the information analyzed in the minutes of the PEMS Advisory Council meetings. Thus, analysis of the management plan in conjunction with analysis of the minutes made it possible to elucidate the actions and deliberations of the Advisory Council, which, in line with the guidelines of the PEMS Management Plan and current legislation, relate to the dissemination of EA.

The Management Plan for Conservation Units is a fundamental tool for the effective and sustainable management of Conservation Units, such as the Matas do Segredo State Park. It serves as a comprehensive guide that defines the conservation objectives of the area, analyzes its physical and biological characteristics, identifies existing threats, proposes management strategies, stipulates the zoning of the Conservation Unit, and establishes action programs to ensure the protection and proper use of the natural resources found there. In view of this, the importance of the Management Plan lies in its ability to integrate different aspects of CU management, promoting biodiversity conservation, responsible public use, scientific research, and integration with the local community. Through a participatory process, the Management Plan seeks to reconcile the interests of society with the need to protect natural heritage, ensuring the long-term sustainability of the CU.

Based on Bardin (2016), the content analysis was divided into stages, as listed below:

- **Pre-Analysis:** organization phase, skimming of the material, formulation of hypotheses and research objectives, definition of units of analysis (words, themes, phrases), and development of an analysis plan.
- **Exploration of Material:** phase of coding, classification, and categorization of data, using the units of analysis defined in the pre-analysis.
- **Treatment of Results, Inference, and Interpretation:** phase of analysis of the coded data, preparation of charts and tables for the interpretation of the results in light of the theory, and discussion of the research conclusions.

We analyzed the minutes following the principles listed in Table 01, bearing in mind that the quality of the analysis depends on the quality of the minutes, as incomplete or poorly written minutes can compromise their analysis, a fact highlighted by Esquinsani (2007):

> "In conclusion, I point out some obstacles to research using minutes as a record of the history of education, based on the case study in question: first, the apparent lack of organization in the recording of these documents in the four administrations analyzed: dates changed; repeated and/or discontinuous minute numbers; several repeated minutes (cleaned up); gross errors in Portuguese; missing information (such as certain dates in the body of the text and other gaps that seem to have been left there to be filled in later); numerous addenda "in time"

> immediately after the conclusion of a meeting and the signing of the participants; erased minutes; pencil notes made inside the records, in addition to other formal issues that hinder the validation and reliability of some of the information contained therein."

This is also evident in the excerpt below, which corroborates the challenges encountered in analyzing minutes that lack standardization: "The lack of definition of a structure or methodology for composing the minutes and discussion on how they should be written may have reduced the possibilities and scope of the documentary analysis of the CG's social participation process" (Dilascio et al. 2022).

Table 1 - Application of Content Analysis to PEMS Minutes.

Categorization of Topics Addressed	Classification of the topics addressed in the minutes into categories, such as: biodiversity conservation, public use, scientific research, environmental education, community relations, resource management, among others. This categorization will facilitate the analysis of the emphasis given to each aspect of environmental management.
Frequency of Topics and Keywords:	Analyzing the frequency with which topics and keywords related to environmental management and environmental education appear in the minutes over time will allow for the identification of trends and changes in the council's approach to environmental management.
Identification of Stakeholders	Analyzing the participation of different actors (community representatives, government agencies, NGOs, among others) in discussions on environmental management and environmental education will allow us to verify whether the representation of different interests occurs in a balanced manner and whether there is room for the effective participation of all actors.
Analysis of Decisions and Actions	Identify the decisions made by the council regarding environmental management and analyze the effectiveness of the implementation of these decisions. This will allow us to verify whether the council's actions are aligned with the objectives of the Management Plan and with current environmental legislation.

Source: Organized by the authors, 2024.

The content analysis was complemented by triangulation of the information obtained in the PEMS Management Plan (IMASUL 2021), legislation, and articles (cf. Yin 2001).

Results and Discussion

The initial overview of PEMS management was obtained by analyzing the minutes of the first two years, which were the only documented minutes belonging to the 2019-2021 triennium and also refer to the previous management, which ended at the end of 2019. Although in the previous administration, board meetings were agreed to take place every two months, the fact that only one meeting was recorded in the 2019-2021 triennium was not described in the minutes. However, we must reflect that in this period from 2020 to 2021, we experienced the Covid-19 pandemic, which made it impossible for people to gather in large groups in order to prevent the spread of the virus. Thus, the minutes did not show the use of other means of remote communication for board meetings.

Under the current administration, meetings began to take place quarterly, and during the 2021-2023 triennium, six meetings were held. The last council meeting took place at the end of 2023. At this last meeting, those present were informed that a request had already been made to renew the Advisory Board for the 2024-2025 biennium. Unfortunately, however, there was no Advisory Board meeting in 2024 because, according to the PEMS manager and research conducted on the IMASUL website, the Ordinance for the Renewal of the PEMS Advisory Board was not published.

Table 1: Minutes of the PEMS Advisory Council Meetings

Type of Meeting	Meeting No.	Date of Meeting
Ordinary	1	September 18, 2019
Regular	1	03/30/2022
Regular	2nd	September 29, 2022
Regular	3	03/09/2023
Extraordinary	1	04/01/2023
Ordinary	4	08/09/2023
Regular	5	12/08/2023

Source: Minutes for the 2019-2021 and 2021-2023 triennia.

The minutes of the PEMS Advisory Council revealed a rich variety of topics related to the management of the Conservation Unit. At this point, it is worth noting that the Advisory Council's work clearly has effective potential, since the management of a conservation unit is challenging in itself, involving conflicts of use and interests between multiple actors and a wide variety of regulatory frameworks (Silva & Anunciação 2023).

An analysis of the frequency of topics addressed in the minutes revealed a marked emphasis on environmental management, with emphasis on the "buffer zone," "subdivisions," and "drainage problems." These keywords appear frequently, especially in the 2023 minutes, demonstrating the centrality of these issues to the Advisory Council. With regard to EA, its occurrence is significantly lower when compared to environmental management, without evidence of strategic planning or systematic actions to ensure its promising and effective dissemination in the PEMS.

Therefore, to facilitate the analysis of the topics present in the minutes, we grouped the two bienniums according to the categories described in Table 02, according to Bardin (2016).

Table 2 - Systematization: minutes of the Advisory Council Meetings, triennia 2019-2021 and 2021-2023.

CATEGORIES	CONTEXT UNITS
Environmental Management:	Buffer Zone and Impact of Land Subdivision: This topic emerges as central to the Council's discussions, highlighting the great concern with the vulnerability of the PEMS to urban pressure. The minutes, especially those from 2023, detail the debates on the Mandela Land Subdivision, located in the buffer zone, and the Council's attempts to minimize the impacts of urbanization on the UC.
	Drainage: The issue of drainage and its impacts on the PEMS occupies a significant space in the minutes. The drainage system on Marques de Herval Street, near the Park, raises concerns due to leaching on the Trilha do Lobo trail. Flooding has caused damage to the conservation unit, and mitigating measures are needed.
	Land Regularization and Conflicts with Owners: The need for land regularization in the park area and conflicts with rural landowners are also mentioned in the minutes. The demarcation of the conservation area and the construction of fences to prevent invasion of the PEMS generate discussions about the need for dialogue and actions to ensure the integrity of the PEMS.
Public Use:	Preparation and Implementation of the Public Use Plan: The need for a Public Use Plan for the PEMS is repeatedly pointed out in the minutes. The absence of a plan to regulate the park's activities, access, and infrastructure is seen as a challenge for the management of the conservation unit.
	Events and Activities: The holding of events in the PEMS, such as "Park Day," is mentioned in the minutes. However, the descriptions are generally superficial, without details of the objectives, target audience, or results achieved.
Biodiversity Conservation:	Fauna Monitoring: The minutes record scientific research conducted in PEMS, with an emphasis on monitoring the tapir population. These records indicate the value of the conservation unit for research and biodiversity monitoring.

	Forest Fire Prevention and Control: Measures to prevent and combat forest fires are also discussed in the minutes, especially during periods of drought. Preventive actions and interventions in the event of fires demonstrate concern for the protection of PEMS ecosystems.
Participatory/Shared Management	Participation of the Advisory Council: The minutes demonstrate the proactive role of the Advisory Council in discussions, deliberations, and decision-making regarding the management of the PEMS. The diverse composition of the Council, with representatives from the community, NGOs, government agencies, and research institutions, contributes to more participatory and democratic management.
	Dialogue with the Campo Grande City Hall: There is frequent dialogue with the Campo Grande City Hall, mainly in relation to the management of the buffer zone, the resolution of drainage problems, and the regularization of land subdivisions.
	Partnerships with Institutions: The minutes mention collaboration with universities, research institutes, and IBAMA on research projects, wildlife monitoring, and environmental education initiatives.
Specific Events:	Environmental Education: The minutes record events held at PEMS with environmental education activities, such as interpretive trails and workshops. However, information about these events is limited, with no details about their objectives, target audience, or results.

Source: Organized by the authors of the research, 2024.

Environmental management at PEMS is complex, permeated by diverse interests and challenges, and based on the search for effective practices to ensure biodiversity conservation in an urban context. The minutes of the PEMS Advisory Council revealed the interaction between the different social actors and the decision-making processes that shape the management of the conservation unit, which in practice means management with the effective intention of a participatory model. This scenario allows for the proper establishment of social control and more permanent and consistent actions for environmental conservation and preservation (Souza & Miranda 2025).

Analysis of the minutes corroborated the existence of good practices that contribute to the effectiveness of PEMS environmental management, such as the composition of the Advisory Council, which includes representatives from the surrounding community, government agencies, NGOs, and research institutions, thus ensuring the participation of different actors with diverse perspectives and interests. To address questions related to the criteria for selecting council members, the SNUC guidelines were consulted, as the Council's internal regulations were not available for clarification. However, Decree No. 4,340/02, Brazil (2002), which regulates the SNUC, states in Article 17 that it is the responsibility of the protected area's administration to nominate members to the council, in accordance with the decree

> § 1 The representation of public agencies shall include, where applicable, environmental agencies from the three levels of the Federation and agencies from

> related areas, such as scientific research, education, national defense, culture, tourism, landscape, architecture, archaeology, and indigenous peoples and agricultural settlements;
>
> § 2 The representation of civil society shall include, where applicable, the scientific community and environmental non-governmental organizations with proven experience in the region of the unit, the resident population and surrounding areas, traditional populations, property owners within the unit, workers and the private sector operating in the region, and representatives of the River Basin Committees.
>
> § 3 The representation of public agencies and civil society on the councils shall, whenever possible, be equal, taking into account regional peculiarities. [...]
>
> § 5 The term of office of council members is two years, renewable for an equal period, unpaid, and considered an activity of significant public interest. [...] (Brazil, 2002).

Experts such as professors from the Geography course at the State University of Mato Grosso do Sul, representatives from the city government, the tourism sector, IBAMA, IMASUL, and community representatives such as merchants and residents from the surrounding area participated in the council meetings. This demonstrates not only the importance of integrating technical and scientific knowledge with local knowledge (IMASUL 2021), but also how the conservation area itself can prove to be a strategic territory for knowledge production, dialogue, and socio-environmental transformation (Sereia et al. 2025). According to the Ministry of the Environment (2004), this approach is in line with the perspective of Ecopedagogy, contributing to the development of solutions that are more appropriate to the reality of protected areas.

Such diversity is fundamental for the legitimacy of decisions and for the construction of more democratic management, as validated by authors such as Maganhotto et al. (2014), who highlight the importance of social participation in the management of conservation units. The participation of the local community is essential to ensure that the management of PEMS takes into account the interests and needs of the population living in the vicinity of the conservation unit. The presence of representatives from government agencies ensures coordination between park management and public policies at the municipal and state levels. NGOs and research institutions bring technical and scientific expertise to the discussions, contributing to decision-making based on scientific and legal knowledge (Videira 2024; Santana et al. 2020; Bresolin et al. 2010; MMA 2004).

The discussions recorded in the minutes cover topics relevant to PEMS management, such as the Management Plan, permitted activities, infrastructure, and environmental impacts on the conservation unit. The transparency of the debates and the search for joint solutions among Council members reinforce the importance of open dialogue in environmental management, converging with the ideas of authors such as Layrargues (2006), who defend the importance of participation and consensus building in environmental management.

Despite good practices, environmental management in the PEMS faces significant challenges, as was the case with the implementation of the subdivision in the PEMS Buffer Zone, which generated conflicts between the actors involved. The divergence between the subdivision proposal and environmental legislation illustrates the challenges in mediating interests and seeking solutions that reconcile urban development with

environmental conservation. Sammarco (2005) addresses the complexity of socio-environmental conflicts in conservation units, reinforcing the need for effective mechanisms for dialogue and negotiation.

The Council's ability to respond to these challenges is fundamental to the effectiveness of environmental management. Yin (2001), in his work on case studies, highlights the importance of flexibility and adaptation in researching and analyzing complex situations. Environmental management in the PEMS is based on the search for shared solutions among the different actors involved. Consensus building and co-responsibility in management, as advocated by authors such as Maganhotto et al. (2014) and Sammarco (2005), are necessary for the sustainability of the Park.

According to Sauvé (2004), EAC seeks to analyze the social dynamics that underlie environmental issues, including the power relations, intentions, positions, arguments, and values of the different actors involved, so that realities can be transformed. Thus, when we reflect from the perspective of SAC on the statement that, despite good practices, environmental management in PEMS faces significant challenges, such as the implementation of a housing development in its Buffer Zone, which has generated conflicts and , it provides an opportunity for collective reflection with the actors involved, which includes the park and its surroundings. Unfortunately, the minutes did not conclude the narrative regarding the developments that took place regarding the implementation of the subdivision. Given that the councilors voted for a halt and for the preparation of an Environmental Impact Report (RIMA), which should be done to determine the Environmental Impact Assessment (AIA) that the installation of this project would cause in the Conservation Unit. However, as it is an advisory council, its decision-making power is limited and does not cover all dimensions of participatory environmental management.

Thus, the EAC seeks not only to empower social actors to participate in environmental management, but also to address the problems faced, with a view to social transformation and the construction of more just and sustainable societies (Choe & Mario 2023). We emphasize that the EAC does not offer ready-made solutions, but rather collective construction to address socio-environmental challenges (Loureiro & Cunha 2008).

In summary, the minutes recorded some actions and referrals resulting from the Council's discussions, such as the preparation of documents, technical inspections, communication with the Municipal Government, and the referral of issues to IMASUL. The minutes highlighted the Council's concern with the occupation of the PEMS Buffer Zone and its impacts on the Conservation Unit. This revealed some of the challenges faced in the management of PEMS, such as the lack of resources, the need for a Public Use Plan focused on the development of activities related to EA, raising awareness among the community and visitors about the pressure resulting from urbanization in the surroundings of the CU, and the occurrence of events that impact the environment. Thus, the demand for the possibility of implementing EAC as a process is imminent, since it would permeate the entire management of the park (Battaini et al. 2024). Another environmental impact present in the PEMS council minutes is inadequate drainage in the surroundings of the PEMS, which has been causing problems in the containment basin, consequently causing erosion on the trail, in addition to damage to the park's fences. This evidence highlights the need for joint actions with the Campo Grande City Hall to mitigate the negative environmental impacts on the conservation area. The PEMS Management Plan (IMASUL 2021) emphasizes the importance of integration between the management of the conservation unit and urban planning for the sustainability of the park.

At the 1st Ordinary Meeting of the PEMS Advisory Council for the 2019-2021 term, held on September 18, 2019, when the new councilors were sworn in, the manager of conservation units at Imasul emphasized the importance of the councilors' role in the decision-making processes of the Advisory Council and, consequently, in the conservation unit.

The PEMS Management Plan (IMASUL 2021) recognizes the importance of public use as a tool for the conservation of the conservation unit and for the well-being of society. The Public Use Plan is integrated into the Management Plan through a specific program, which aims to organize and promote recreational, educational, and leisure activities in contact with nature.

Therefore, the participation of the PEMS Advisory Council adds to the management of the unit and the implementation of the Public Use Plan. The keywords related to EA are limited to specific mentions of events and activities, such as the *"A Day in the Park"* event, without delving deeper into the discussion of its objectives and results.

The *"A Day in the Park"* event is an example of how the Public Use Plan can be used to bring the community closer to PEMS. The event offered activities such as guided trails, running and cycling, dancing, yoga, bird watching, face painting for children, balloon sculptures, and snacks, providing meaningful experiences in contact with nature. These actions demonstrate the Council's commitment to environmental awareness and education, corroborating the importance of EA as an environmental management tool (Bresolin et al. 2010; Torres & Oliveira 2008). According to the IMASUL web (2024), the event *"A Day in the Park"* took place on July 31, 2022, and on July 22 and 23, 2023, at PEMS. This event is part of a national campaign that aims to encourage families and communities to visit and explore conservation units throughout Brazil. It raises awareness among visitors about the benefits of contact with nature, especially for children. It is promoted by the Pro-Conservation Units Coalition, a group of entities that work to defend and promote conservation units, such as WWF-Brazil and the SOS Mata Atlântica Foundation (WWW-Brazil 2024).

Table 3 - PEMS Public Use and Environmental Education Program

Objective	To establish and organize recreational, leisure, and sports activities in order to provide visitors with the opportunity to understand the environment and its interrelationships in the conservation area, transmitting knowledge and values of the area's natural and cultural heritage.
Guidelines	The program seeks to promote understanding of the importance of PEMS, visitor satisfaction, rationalization of activities, integration of the park into the regional educational context, inclusion of PEMS in Campo Grande tourist itineraries, and expansion and diversification of public use.
Activities	Develop the PEMS Public Use and Environmental Education Plan, defining activities and standards for different audiences. Regulate existing activities and those to be proposed in the Public Use Plan. Formalize a Cooperation Agreement with the Environmental Military Police for the development of the Florestinha Project, which carries out socio-educational activities with children and adolescents. Conduct studies on the support capacity of the trails and the tourist load capacity of the Conservation Unit. Implement visitor guidance in the PEMS. Implement new itineraries, products, and services.

Sources: Organized by the authors based on the Management Plan (IMASUL 2021).

The revision of the Management Plan mentioned in the 2019 minutes highlights the importance of this verification, which is in line with the guidelines of the Methodological Roadmap for the Preparation of Management Plans of IBAMA and ICMBIO, according to the PEMS Management Plan (IMASUL 2021). The emphasis on community participation in the revision of the Management Plan is in line with the principles of participatory management, as discussed in Loureiro and Cunha (2008) and Silva and Salvio (2022). This is another point that deserves further analysis regarding the management of conservation units and the potential contribution of EAC. Araújo and Affonso (2022) illustrate that the lack or superficiality of environmental education in effective conservation unit actions is often a process that stems from the inability of environmental educators themselves to incorporate EAC principles while participating in the development of management plans. In other words, community participation alone is not enough to guarantee the contributions of EAC as an environmental management tool.

Consequently, the minutes record the decisions forwarded by the Advisory Council, but in many cases they fail to provide sufficient information to assess the effectiveness of their implementation. In some cases, the minutes mention the forwarding of official letters, the conduct of inspections, or the request for information from competent bodies, but there is no systematic monitoring of the results and feedback from these actions in the minutes.

PEMS has been a space for scientific research, with an emphasis on ecological monitoring. One example is the research on tapirs conducted by the National Institute for Amazonian Research (INPA). This research uses monitoring methods to investigate the tapir population in the park area, providing important data for the conservation of the species. We emphasize that the Advisory Council Minutes do not detail the specific results or methodologies of the research; the information is limited to mentioning the existence of the research. Therefore, there is a clear demand for socio-environmental studies, which fit into EA research.

We identified that the practice of EA is restricted to specific events. The minutes mentioned the need to disseminate information about the PEMS and the Management Plan, with the aim of raising awareness in the community, which is in line with the objectives of Environmental Education in Conservation Units, according to Campelo Junior et al. (2020) and Witt et al. (2013). Nevertheless, this analysis may be evidence of the relevance of a more continuous implementation of EA, which could have the Management Plan as its structuring axis, which would assist the advisory council in achieving the Park's management objectives (Ferreira & Rodrigues 2025).

Thus, we understand that the minutes of the PEMS Advisory Council are important documents that allowed us to follow one of the administrative interfaces of the CU, as well as how EA emerged in management discussions.

Final Considerations

We conclude with this work that the activities developed at PEMS disseminate preservationist EA. These activities expand access to information about the CU and, consequently, there is an increase in social participation in PEMS (as a result of specific events). Although PEMS environmental management has made progress in social participation and the search for joint solutions, there is still room for the proliferation and dissemination of Environmental Education from a critical and/or transformative perspective.

The analysis of the minutes of the Advisory Council is a starting point for reflections and proposals that strengthen EA in the environmental management of PEMS. The minutes highlighted a variety of topics discussed by the councilors, such as: the revision of the Management Plan; the occupation of the Buffer Zone with the construction of a housing development near the Conservation Unit; and the holding of events in the Park. Our reflections are in line with strengthening the Public Use Plan, making it more effective and

proposing activities that sharpen the critical thinking of its visitors and sensitize citizens to seek realistic, viable, coherent solutions that are necessary for the balance and conservation of biodiversity in the conservation unit.

The negative impacts related to drainage in the park's surroundings, invasions, and drought (a season when there is an increase in fires in the unit) are important issues linked to the physical structure of the PEMS, politics, culture, economy, among others, requiring complex solutions thought out by the largest and most diverse group of citizens so that they are truly effective and fair for all involved. Therefore, discussing complex issues during visits, events, and meetings is essential for the formation of critical citizens.

In fact, PEMS has great potential to consolidate itself as an EES and may in the future contribute to the formation of critical citizens engaged in environmental protection. The aim was not only to address the existing environmental crisis, but also to reflect on the importance of the park and encourage assertive, coherent, and fair actions for the environment. The reflections addressed throughout the text aim to foster a more harmonious relationship between society and nature.

Therefore, the joint and multidisciplinary formulation of viable solutions/activities that actually meet the characteristics of PEMS, aiming at the dissemination of EA, corroborates the formation of critical and active citizens in the construction of a sustainable and fair city for all. It should be noted that the location of the UC in an urban area facilitates access for the population and expands the possibilities for educational activities, in addition to recreational activities from a critical and transformative perspective.

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