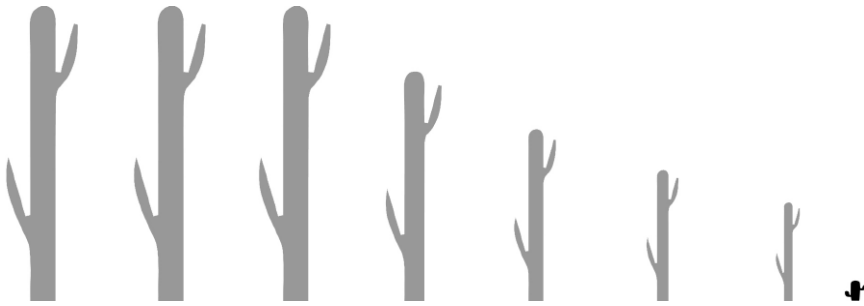


Extended abstract

*The Private Natural Heritage Reserves
of Brazil in the Scientific Literature:
Themes and Contributions*



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DOI: 10.4422/ager.2024.04

ager

Revista de Estudios sobre Despoblación y Desarrollo Rural
Journal of Depopulation and Rural Development Studies

Highlights:

1. The RPPN is a voluntary private conservation mechanism inserted in rural spaces.
2. Research on RPPN contributes to improving the knowledge produced about conservation and new ruralities.
3. The content of the investigations prioritizes the biological aspects of private protected areas.
4. Physical and socio-environmental aspects are challenges for research in protected areas of the RPPN.

Abstract: In Brazil, the Privately Protected Areas (PPA) is known as the Private Natural Heritage Reserve (RPPN). This is a kind of Sustainable Use Conservation Unit with limitations regulated by the National System of Conservation Units (SNUC). This study aims to identify and analyze the themes and contributions arising from the contents published in scientific journals with an interest in in situ conservation based on private areas of RPPN in Brazil, related to the period between 1990 and 2020. Thus, articles from the Web of Science and SCOPUS databases were selected. Subsequently, a qualitative analysis of the data was carried out, through a systematic review based on the content analysis method using the ATLAS.ti software. This made it possible to identify 79 studies linked to the biological thematic field, 11 linked to the socio-environmental thematic field and 6 related to the physical thematic field. The result points out that the most common forms of contribution are those related to the identification of endangered fauna and flora species and new records of species inside privately protected areas. Exceptionally, the record of the discovery of new species in an RPPN area.

Keywords: Privately Protected Area, Private Natural Heritage Reserve, Brazil, Systematic Review.

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Extended abstract

1. Introduction and justification

Brazil occupies an area of over 8 million km² and boasts a wide variety of natural landscapes and biodiversity. For this reason, Brazil plays an important role in the global scenario when it comes to finding solutions for sustainable development and conservation. This systematic review focuses on the themes and contributions of research on Private Protected Areas, under the regime of Private Natural Heritage Reserves (PNHR, Reserva Particular do Patrimônio Natural (RPPN), in Portuguese), published from 1990 to 2020.

In Brazil, PPAs are a type of protected area recognized by the Government and listed in the National Conservation Units System (NCUS, Sistema Nacional de Unidades de Conservação, in Portuguese) named NHPR, as a unique type of private protected space, predominantly rural, established exclusively by the initiative of landowners and endorsed by any level of Public Administration.

The systematic presentation of the research works led to identifying significant data on fauna and flora, suggestions for environmental management, and recommendations for strengthening public policies.

2. Objectives, Methodology and sources

The main focus of this study is to conduct a systematic review to identify the themes and contributions of research on Private Protected Areas (PPA), under the Private Natural Heritage Reserves (PNHR) regime published from 1990 to 2020. To that end, the content analysis technique subsidized the analysis of the information obtained from the selected scientific papers (Neuendorf, 2002; Bardin, 2011). In view of the large volume of data to be managed, automatic analysis of non-numerical data was used. To do that, we used the ATLAS.ti software, which allows different types of text analysis.

Therefore, a reference corpus of the scientific production in the form of indexed papers listed in the Web of Science and SCOPUS databases was set up for the time frame

determined for this study; then, the necessary analyses were conducted towards extracting the themes and contributions linked to nature conservation and biodiversity.

After the corpus was defined, the next steps were coding, description and analysis, based on the principles of content analysis (Bardin, 2011) and cyclic coding advocated by Miles et al. (2014). This way, it was possible to record and quantify the Recording Units (RU), which can be a single word or a short phrase with a symbolic meaning related to the text subject. To record and determine the magnitude of the RU, that is, the frequency with which a certain term appears in the text, ATLAS.ti was used.

3. Results

The results were presented based on the methodological prerogatives of qualitative research. The Recording Units are represented by the actions, elements, and results. The actions are organized into three categories: exploratory, descriptive, and explanatory, whereas the elements are organized into three categories: biological, physical, and socio-environmental. The interaction of those categories resulted in "Thematic Fields" which led to identifying contributions.

The actions are determined by the verbs that indicate the goals of the publications. This study identified 32 actions and 158 occurrences. The elements are determined by the biological, physical, and socio-environmental processes and objects described in the respective texts of the publications. The result were 87 types of elements with a magnitude of 240 in total.

The systematic ordering of the research results led to highlighting and organizing 96 papers based on the actions and elements of greater magnitude. Thus, 79 papers were identified containing research focusing on biological elements and mobilized by exploratory, descriptive, and explanatory actions; 6 papers in the thematic field of physical elements focusing on studies mobilized by exploratory, descriptive, and explanatory actions; and 11 papers in the thematic field of socio-environmental elements, with investigations mobilized by exploratory, and explanatory actions.

4. Discussion

Conservation units are a successful strategy to maintain environmentally relevant areas. However, challenges such as those related to the maintenance of the

National Conservation Unit System (Sistema de Unidade de Conservação Nacional, in Portuguese), the problems inherent in each conservation unit, and the socioeconomic pressures that protected areas are intended to face, permeate the need for greater knowledge about what has been produced about conservation areas, especially private conservation areas.

The methodological approach allowed cataloguing information deriving from the selected scientific production and verifying its interface with the contributions identified in the analysed corpus. In this context, eight actions and twelve elements related to the thematic field of biological elements stand out. Said actions involve exploratory, descriptive, and explanatory interactions with various biological elements such as birds, diet, reptiles and amphibians, insects, arthropods, mammals, bats, primates, trees, herbs, shrubs, and bryophytes.

The thematic field of physical elements is characterized by the occurrence of "soil" and "meteorological events" that are mobilized by descriptive, exploratory, and explanatory actions. Such elements can be analysed by descriptive, exploratory, and descriptive actions, such as investigating the "macroarthropod community in dry and muddy soil", investigating the "seed bank in the dry-period soil" and evaluating the litterfall production.

The thematic field of socio-environmental elements consists of a semantic network of seven elements: indicators of environmental sustainability, environmental perception, NHPR environment, ecotourism, property, public policies, and environmental conservation. Such elements express aspects of social, legal, economic, and environmental management related to the constitution of NHPR.

Regarding these interactions, we found contributions to environmental management by tourist activities and public policies based on economic incentives. However, NHPR protected areas face challenges to identify the factors responsible for promoting or inhibiting tourism and its practices. The incentive to tourism in NHPR has been recommended as an alternative to promote economic, managerial, and conservation aspects with some positive results for the preservation of biodiversity in the Brazilian rural context.

5. Conclusions

Private Natural Heritage Reserves (PNHR) protected areas are crucial for the preservation of biodiversity and natural systems. They are rural setups that bring

together social, economic, legal, and environmental aspects under private management in rural spaces. The Brazilian private preservation of NHPR areas has enabled the production of substantial scientific data. This has made way for the increase of information on private preservation, especially information related to topics focusing on biological aspects.

This has allowed significant scientific contributions such as discovering new species, identifying endangered species, and recording new spatial occurrences of species, hitherto unknown, which indicate the need to advance in other directions to allow research supported by different thematic spectra, spatially representative across Brazil's biomes and other parts of the globe.

6. Next steps

More research is needed about the physical and socio-environmental aspects of private protected areas to increase and diversify scientific production and positively impact the knowledge about nature conservation and biodiversity from the perspective of private agents.