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Birdwatching as a regenerative tourism practice: evidence from Brazilian public policy

Marcos R. Pisarski Jr. *Itaipu Parquetec (Itaipu Technology Park), Sustainable Tourism Laboratory, Foz do Iguaçu, Brazil*✉ marcos.pisarski@gmail.com

Abstract. The development of regenerative tourism has been proposed as a response to the limitations of conventional sustainable tourism, particularly its restricted capacity to address long-term socioecological challenges. However, empirical evidence supporting regenerative tourism remains limited, especially at territorial and public policy scales in biodiverse countries. This study aims to analyze birdwatching tourism as a regenerative-oriented tourism practice in Brazil, based on national public policy evidence. The research adopts analytical and conceptual design grounded in secondary data analysis. The primary source is the National Diagnosis of Public Policies for Birdwatching Tourism in Brazil published by the Ministry of Tourism in 2025, complemented by institutional reports and peer-reviewed scientific literature on bird conservation, citizen science, and regenerative tourism. The data were reinterpreted using an analytical framework focused on key regenerative dimensions, including conservation financing, biodiversity monitoring, participatory governance, and territorial planning. The results indicate that birdwatching tourism in Brazil operates predominantly within areas of high conservation priority and is supported by measurable mechanisms relevant to regeneration. These mechanisms include the generation of economic resources associated with conservation activities, large-scale biodiversity monitoring through citizen science platforms, and institutionalized governance arrangements aligned with biodiversity conservation policies. Although the concept of regenerative tourism is not explicitly employed in Brazilian tourism policy, birdwatching tourism demonstrates functional characteristics consistent with regenerative principles. The study concludes that birdwatching tourism in Brazil can be understood as a regenerative-oriented practice when regeneration is interpreted as a long-term, systemic, and policy-mediated process. The findings contribute to strengthening the empirical basis of regenerative tourism research and highlight the relevance of public policy analysis for assessing regenerative dynamics in megadiverse contexts.

Keywords: avitourism, biodiversity conservation, citizen science, tourism governance, Brazil

Conflicts of interest. The author declares no conflicts of interest.

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Наблюдение за птицами как практика регенеративного туризма: свидетельства из государственной туристской политики Бразилии

Маркус Р. Писарски мл. 

*Itaipu Parquetec (Технологический парк Итайпу), Лаборатория устойчивого туризма,
Фос-ду-Игуасу, Бразилия
✉marcos.pisarski@gmail.com*

Аннотация. Регенеративный туризм рассматривается как ответ на ограничения традиционного устойчивого туризма, особенно в части решения долгосрочных социоэкологических проблем. При этом эмпирические исследования регенеративного туризма остаются ограниченными, в частности на уровне территориальной политики в биологически богатых странах. Цель исследования — проанализировать орнитологический туризм как регенеративно-ориентированную туристскую практику в Бразилии на основе данных государственной политики. Исследование основано на аналитико-концептуальном подходе и анализе вторичных данных. Основным источником является Национальный диагностический отчет по государственной политике в сфере туризма наблюдения за птицами в Бразилии (Министерство туризма, 2025), дополненный институциональными материалами и рецензируемыми научными публикациями. Анализ проведен с использованием рамки регенеративного туризма, включающей финансирование охраны природы, мониторинг биоразнообразия, партисипативное управление и территориальное планирование. Результаты показывают, что орнитологический туризм в Бразилии реализуется преимущественно на территориях с высокой природоохранной значимостью и опирается на измеримые регенеративные механизмы, такие как формирование экономических ресурсов для охраны природы, масштабный мониторинг биоразнообразия на основе гражданской науки и институционализированные управленческие структуры, согласованные с политикой сохранения биоразнообразия. Несмотря на отсутствие термина «регенеративный туризм» в туристской политике страны, орнитологический туризм демонстрирует функциональные признаки регенеративного подхода. Сделан вывод о том, что орнитоло-

гический туризм в Бразилии может рассматриваться как регенеративно-ориентированная практика при интерпретации регенерации как долгосрочного и системного процесса, опосредованного государственной политикой.

Ключевые слова: авитуризм, сохранение биоразнообразия, гражданская наука, управление туризмом, Бразилия

Заявление о конфликте интересов. Авторы заявляют об отсутствии конфликта интересов.

Заявление об использовании технологий искусственного интеллекта. Инструменты искусственного интеллекта (ИИ) использовались исключительно для языкового редактирования, включая орфографическую проверку, а также для помощи в форматировании и стандартизации цитат и библиографических ссылок. Технологии ИИ не использовались при создании, анализе или интерпретации научного содержания исследования. Авторы заявляют, что полностью осознают и принимают на себя всю полноту ответственности за содержание данной рукописи. Использование инструментов искусственного интеллекта носило вспомогательный характер и не заменяло экспертного суждения, критического мышления и научной добросовестности авторов.

Заявление о доступности данных. Все данные, полученные в ходе этого исследования, включены в опубликованную статью.

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Introduction

Over the last two decades, tourism research and practice have increasingly recognized the structural limitations of conventional sustainable tourism frameworks. While sustainability-oriented approaches have contributed to mitigating negative environmental and social impacts, they have often remained restricted to damage reduction and efficiency gains, without directly addressing the regeneration of degraded socioecological systems. In response to these limitations, regenerative tourism has emerged as an alternative paradigm that emphasizes active restoration, system renewal, and the long-term vitality of ecosystems and host communities, grounded in systems thinking, regenerative design, and adaptive governance [1–5].

Recent academic literature indicates a growing consolidation of regenerative tourism as a field of inquiry, particularly in relation to development challenges faced by regions in the Global South. Empirical and policy-oriented studies demonstrate that regenerative tourism seeks not only to reduce negative impacts but to generate net positive ecological, social, and economic outcomes through place-based strategies, community engagement, and alignment with territorial development processes. Applied cases documented in Brazil, such as reef restoration initiatives integrated with tourism activities, illustrate how regenerative principles can be

operationalized through concrete actions involving conservation, local actors, and public policies [1–3; 5; 6]. Nevertheless, despite this conceptual and empirical advancement, several authors highlight the persistent scarcity of systematically documented cases demonstrating how regenerative principles are translated into consistent tourism practices and governance arrangements, particularly at national and territorial scales [1; 5; 7].

From a broader environmental science perspective, regeneration is increasingly understood as a measurable process involving ecosystem recovery, ecological connectivity, and long-term resilience. Large-scale empirical evidence demonstrates that conservation strategies prioritizing connectivity can significantly enhance biodiversity protection and fisheries conservation outcomes, producing measurable ecological benefits when supported by coherent territorial planning and governance frameworks [8]. At the same time, research on natural forest regeneration in the Brazilian Amazon reveals that regenerative outcomes are strongly conditioned by institutional coordination, policy design, and governance capacity, highlighting that regeneration is not solely an ecological process but also a political and institutional one [9]. These findings provide a robust scientific basis for examining tourism practices that operate in close alignment with conservation policies and landscape-scale planning instruments.

Within this context, nature-based tourism has been identified as a particularly favorable field for regenerative experimentation. Activities characterized by low material intensity, strong educational components, and close interaction with natural systems offer opportunities to align tourism demand with conservation incentives, learning processes, and territorial development goals. Among these activities, birdwatching — also referred to as avitourism or birding — stands out due to its documented links to biodiversity conservation, environmental education, citizen science, and local economic development [10–14].

Birdwatching tourism has been shown to generate high-value, low-volume tourism flows, contribute to conservation financing, and support biodiversity monitoring through the active participation of visitors in citizen-science platforms. Empirical evidence from different geographical contexts indicates that birdwatching can reinforce pro-conservation attitudes, support protected areas, and strengthen local economies without the pressures commonly associated with mass tourism [10; 13–15]. These characteristics position birdwatching as a tourism practice that potentially transcends conventional sustainability paradigms and aligns with core regenerative tourism principles.

In Brazil, a megadiverse country hosting nearly two thousand bird species and high levels of endemism, birdwatching tourism has expanded significantly over recent decades and has gained increasing institutional recognition. This process culminated in 2025 with the publication of the Diagnosis of Public Policies for Birdwatching Tourism in Brazil by the Brazilian Ministry of Tourism (Figure 1).

The document provides comprehensive empirical evidence on demand profiles, territorial distribution, governance arrangements, sectoral organization, and the policy instruments shaping birdwatching tourism in the country.¹

In parallel with national policy instruments, Brazil's international tourism promotion agency, Embratur, has incorporated birdwatching into its strategic positioning as a nature-based tourism segment in international markets. In 2024, Embratur published the institutional report Everything about Birdwatching (Figure 2), which systematizes key empirical information relevant to birdwatching tourism, the distribution of birdwatching destinations across all major biomes, the strong overlap between birdwatching areas and protected territories, and the country's international air connectivity with strategic source markets for nature-based tourism.² By framing birdwatching as a high-value, low-volume activity aligned with biodiversity conservation and specialized tourism demand, the document reinforces the articulation between conservation agendas, territorial planning, and international tourism policy.

Although neither the national diagnosis nor the international promotion documents explicitly adopt the terminology of regenerative tourism, their empirical findings reveal a tourism practice that operationalizes several core regenerative



Figure 1. Cover of National Diagnosis of Public Policies for Birdwatching Tourism in Brazil

Source: Diagnosis of Public Policies for Birdwatching Tourism in Brazil. *Brazil. Ministry of Tourism*. Ministry of Tourism; 2025. 116 p. Available from: https://www.gov.br/turismo/pt-br/acesso-a-informacao/acoes-e-programas/programas-projetos-acoes-obras-e-atividades/produtos-e-experiencias-turisticas/turismo-de-aves/diagnostico-de-politicas-publicas-turismo-de-observacao-de-aves_112025.pdf (accessed: 12.12.2025).

¹ Brazil. Ministério do Turismo. *Diagnóstico de Políticas Públicas do Turismo de Observação de Aves no Brasil*. Brasília: Ministério do Turismo; 2025. 116 p. Available from: https://www.gov.br/turismo/pt-br/acesso-a-informacao/acoes-e-programas/programas-projetos-acoes-obras-e-atividades/produtos-e-experiencias-turisticas/turismo-de-aves/diagnostico-de-politicas-publicas-turismo-de-observacao-de-aves_112025.pdf (accessed: 12.12.2025).

² Tudo sobre. Observação de aves. *Brasília. Embratur*. Brasília: Brazilian Agency for International Tourism Promotion; 2024. Available from: https://embratur.com.br/wp-content/uploads/2023/03/Brasil_Embratur_E-book_Observacao_de_Aves_Maio_2024.pdf (accessed: 12.12.2025).



Figure 2. Cover of Everything about Birdwatching Report in Brazil

Source: Everything about Birdwatching — Brazil. Brazil, 2024: Brazil. Embratur. Brasília: Brazilian Agency for International Tourism Promotion; 2024. Available from: https://embratur.com.br/wp-content/uploads/2023/03/Brasil_Embratur_E-book_Observacao_de_Aves_Maio_2024.pdf (accessed: 12.12.2025).

dimensions in practice. These include ecological regeneration linked to conservation and biodiversity monitoring, social participation through community-based guiding and environmental education, economic value creation associated with high-value and low-volume tourism flows, and participatory governance supported by citizen-science infrastructures³ [1; 3; 5; 14].

Against this backdrop, this article examines birdwatching tourism as an empirically grounded regenerative tourism practice, using Brazilian public policy evidence as its primary analytical foundation. By reinterpreting official policy data through a regenerative tourism framework, the study seeks to contribute to the consolidation of regenerative tourism research while strengthening the dialogue between theory, empirical evidence, and tourism policy in biodiverse contexts of the Global South.

Research Aim and Analytical Framework

The aim of this study is to analyze birdwatching tourism in Brazil as an empirically grounded regenerative tourism practice, based on official public policy evidence. Rather than approaching birdwatching as an isolated tourism niche, the research focuses on its institutionalization within national and international policy instruments, seeking to reinterpret existing policy data through a regenerative tourism perspective. In doing so, the study contributes to the consolidation of regenerative tourism research by providing an empirically supported analysis

³ Brazil. Ministry of Tourism. *Diagnosis of Public Policies for Birdwatching Tourism in Brazil*. Brasília: Ministry of Tourism; 2025. 116 p. Available from: https://www.gov.br/turismo/pt-br/acao-a-informacao/acoes-e-programas/programas-projetos-acoes-obras-e-atividades/produtos-e-experiencias-turisticas/turismo-de-aves/diagnostico-de-politicas-publicas-turismo-de-observacao-de-aves_112025.pdf (accessed: 12.12.2025); Everything about Birdwatching — Brazil. Brazil. Embratur. Brasília: Brazilian Agency for International Tourism Promotion; 2024. Available from: https://embratur.com.br/wp-content/uploads/2023/03/Brasil_Embratur_E-book_Observacao_de_Aves_Maio_2024.pdf (accessed: 12.12.2025).

of how regenerative principles are operationalized in practice within a nature-based tourism context in the Global South.

Specifically, the analysis examines the extent to which birdwatching tourism policies and institutional arrangements in Brazil correspond to core regenerative tourism dimensions. These include contributions to ecological regeneration through biodiversity conservation and environmental monitoring; forms of social participation associated with community-based guiding, environmental education, and citizen-science engagement; patterns of economic value creation linked to high-value and low-volume tourism flows; and governance mechanisms that articulate tourism policy with environmental governance and territorial planning. By focusing on these dimensions, the study moves beyond a purely normative discussion of regeneration and instead assesses how regenerative outcomes are embedded in policy-supported tourism practices.

Methodologically, the study adopts a qualitative, policy-oriented analytical approach based on document analysis. The research does not generate primary empirical data but is grounded in the systematic examination and reinterpretation of secondary data derived from official public policy documents and institutional reports related to birdwatching tourism in Brazil. The primary sources include the *Diagnosis of Public Policies for Birdwatching Tourism in Brazil*, published by the Brazilian Ministry of Tourism, and Embratur's institutional report *Everything about Birdwatching — Brazil*, which provide comprehensive empirical information on demand profiles, territorial distribution, governance arrangements, sectoral organization, and policy instruments relevant to birdwatching tourism.

The analytical framework is operationalized through a document-based interpretative matrix that maps empirical evidence from these policy sources against the core regenerative dimensions identified in the literature. This approach enables a structured and transparent assessment of how birdwatching tourism policies and practices align with regenerative tourism principles, while avoiding overstatement of causal relationships or direct impact measurement. By explicitly articulating its analytical logic, data sources, and interpretative categories, the study ensures methodological rigor and replicability, directly addressing critiques regarding the empirical grounding of regenerative tourism research.

Materials and Methods

Study Design

This study adopts a qualitative, analytical–conceptual research design based on the examination and reinterpretation of secondary data derived from official public policy documents and institutional reports. Consistent with policy-oriented research in tourism and environmental governance, the study does not seek to generate new primary empirical data, surveys, or interviews. Instead, it produces original analytical insights by reinterpreting existing policy-generated datasets through

a regenerative tourism framework, allowing for a structured assessment of how regenerative principles are embedded in birdwatching tourism policies and practices in Brazil.

Data Sources

The primary source of empirical material is the Diagnosis of Public Policies for Birdwatching Tourism in Brazil, published in 2025 by the Brazilian Ministry of Tourism. This national diagnostic constitutes the most comprehensive policy-based assessment of birdwatching tourism in the country to date. According to the official methodology described in the document, the diagnosis is based on surveys conducted by the Ministry of Tourism and its technical partners with a total of 2,640 respondents, including professional ornithologists, amateur birdwatchers, tourism practitioners, and other stakeholders engaged in birdwatching tourism activities. These respondents participated in the survey as users and actors of birdwatching tourism, rather than as scientific observers conducting ornithological research.

In addition to the survey component, the national diagnosis includes the mapping of more than 300 enterprises associated with birdwatching tourism across Brazilian biomes, as well as an analysis of governance arrangements, institutional actors, and policy instruments relevant to the development of birdwatching tourism. The present study does not aim to inventory or classify individual enterprises, but uses these aggregated data to illustrate the territorial scope, sectoral organization, and institutional recognition of birdwatching tourism within national policy frameworks.

The diagnosis also incorporates information derived from citizen-science platforms commonly used in birdwatching contexts, such as *eBird* and *WikiAves*. In the present research, these platforms are not used as primary data sources. Only the validated and synthesized information already incorporated into the official policy documents is considered, acknowledging the methodological limitations associated with citizen-science data, including variability in observer expertise and potential spatial or taxonomic inaccuracies.

Complementary institutional data are drawn from Embratur's report Everything about Birdwatching — Brazil (2024), which provides additional empirical information on avian biodiversity, the distribution of birdwatching destinations across Brazilian biomes, the relationship between birdwatching areas and protected territories, and international air connectivity with key source markets for nature-based tourism. Peer-reviewed academic literature on regenerative tourism and birdwatching is used to support the conceptual framing and interpretation of the policy evidence.

Analytical Procedure

The analytical procedure follows a structured, qualitative interpretative approach. First, core regenerative tourism dimensions are identified based on the literature, with particular attention to ecological regeneration, social participation,

economic value creation, and governance and policy integration. Second, empirical information extracted from the policy documents is systematically reclassified according to these analytical dimensions. Third, an interpretative analysis is conducted to examine how the policy-supported practices and institutional arrangements associated with birdwatching tourism correspond to regenerative tourism principles.

This procedure enables the study to bridge conceptual debates on regenerative tourism with policy-driven empirical material, without asserting causal relationships or direct impact measurement. By focusing on coherence, orientation, and institutional alignment, the analysis provides an empirically grounded assessment of birdwatching tourism as a regenerative tourism practice within a public policy context.

Results

The results demonstrate that birdwatching tourism in Brazil operates within a quantitatively robust ecological and institutional context that supports regenerative outcomes, particularly through conservation financing, biodiversity monitoring at scale, territorial governance, and policy integration. Rather than attributing direct habitat restoration outcomes to birdwatching tourism alone, the evidence indicates that this activity contributes to regeneration through cumulative, measurable mechanisms embedded in public policy and conservation systems.

Biodiversity context and conservation relevance in Brazil

Brazil occupies a central position in global bird conservation. The country hosts approximately 1,919 to 1,971 bird species, depending on the taxonomic reference, representing one of the richest avifaunas worldwide.⁴ At the same time, Brazil holds the highest number of globally threatened bird species in the Neotropics, with 166 species classified as globally threatened and a total of 289 species of conservation concern when near-threatened taxa are included [16]. This dual condition of exceptional biodiversity richness and high conservation risk establishes a critical ecological context within which birdwatching tourism intersects with conservation and regeneration agendas.

Importantly, biodiversity richness and conservation risk are unevenly distributed across Brazilian biomes. While the Amazon concentrates the highest number of bird species, other biomes present a disproportionately high concentration of

⁴ Diagnosis of Public Policies for Birdwatching Tourism in Brazil. *Brazil. Ministry of Tourism*. Brasília: Ministry of Tourism; 2025. 116 p. Available from: https://www.gov.br/turismo/pt-br/acao-a-informacao/acoes-e-programas/programas-projetos-acoes-obras-e-atividades/produtos-e-experiencias-turisticas/turismo-de-aves/diagnostico-de-politicas-publicas-turismo-de-observacao-de-aves_112025.pdf (accessed: 12.12.2025); Everything about Birdwatching — Brazil. *Brazil. Embratur*. Brasília: Brazilian Agency for International Tourism Promotion; 2024. Available from: https://embratur.com.br/wp-content/uploads/2023/03/Brasil_Embratur_E-book_Observacao_de_Aves_Maio_2024.pdf (accessed: 12.12.2025).

threatened taxa. As shown in Table 1 the Atlantic Forest concentrates the largest number of threatened bird species (84), followed by the Amazon (57) and the Cerrado (48), highlighting pronounced territorial asymmetries in conservation priorities across the country.

Table 1. Distribution of bird species and threatened species across Brazilian biomes

BIOME	SPECIES	THREATENED SPECIES
Amazon	1300	57
Atlantic Forest	891	84
Cerrado	837	48
Caatinga	548	24
Pantanal	582	9
Pampa	578	13
Coastal/Marine Zone	130	13

Source: adapted by M.R. Pisarski Jr. from P.F. Develey [16].

Conservation efforts in Brazil have produced territorially measurable outcomes. Over the last two decades, targeted conservation initiatives resulted in the creation of approximately 79,500 hectares of protected areas specifically aimed at safeguarding highly threatened bird species. In addition, 237 Important Bird and Biodiversity Areas (IBAs) have been identified nationwide, with 123 sites (approximately 52%) located in the Atlantic Forest, reflecting the spatial concentration of threatened species and conservation priorities in this biome [16]. These protected and priority areas constitute the landscapes where birdwatching tourism is predominantly practiced, reinforcing the ecological embeddedness of the activity.

Conservation financing and economic mechanisms supporting regeneration

Quantitative evidence from conservation finance literature demonstrates that tourism constitutes a significant funding mechanism for bird conservation. A global assessment of 562 threatened bird species identified reliable financial data for 90 species (16%), within which tourism-derived revenues accounted for 10 to 64% of total conservation funding, particularly in regions such as South America and Africa [10]. The dependence on tourism revenue was statistically higher for critically endangered species compared to endangered species ($p < 0.02$) [10]. These findings provide a measurable basis for interpreting birdwatching tourism as an indirect but quantifiable contributor to conservation financing and, by extension, regenerative ecological processes.

While Brazilian public policy documents do not disaggregate conservation financing exclusively by tourism segment, the national diagnostic indicates that birdwatching tourism is framed as a high-value, low-volume activity, strategically positioned to generate economic incentives compatible with conservation

objectives⁵. This orientation aligns with broader regenerative tourism frameworks that emphasize quality over quantity and long-term ecosystem vitality rather than short-term visitor growth [1; 3; 5].

Biodiversity monitoring and citizen science at scale

One of the most quantitatively significant regenerative mechanisms associated with birdwatching tourism is biodiversity ... monitoring through citizen science (illustrated in Figure 3). The eBird platform exemplifies the scale of this contribution. By 2013, eBird had accumulated over 140 million bird occurrence records, submitted by approximately 150,000 observers, who collectively invested 10.5 million hours in field data collection. Over a ten-year period, data submissions increased at an annual rate of 30–40%, demonstrating exponential growth in monitoring capacity [14]. These datasets are now routinely used in species distribution modeling, conservation planning, and biodiversity assessments.



Figure 3. Citizen science group focused on birdwatching

Source: Diagnosis of Public Policies for Birdwatching Tourism in Brazil. *Brazil. Ministry of Tourism*. Brasília: Ministry of Tourism; 2025. 116 p. Available from: https://www.gov.br/turismo/pt-br/aceso-a-informacao/aco-es-e-programas/programas-projetos-aco-es-obras-e-atividades/produtos-e-experiencias-turisticas/turismo-de-aves/diagnostico-de-politicas-publicas-turismo-de-observacao-de-aves_112025.pdf (accessed: 12.12.2025).

⁵ Diagnosis of Public Policies for Birdwatching Tourism in Brazil. *Brazil. Ministry of Tourism*. Brasília: Ministry of Tourism; 2025. 116 p. Available from: https://www.gov.br/turismo/pt-br/aceso-a-informacao/aco-es-e-programas/programas-projetos-aco-es-obras-e-atividades/produtos-e-experiencias-turisticas/turismo-de-aves/diagnostico-de-politicas-publicas-turismo-de-observacao-de-aves_112025.pdf (accessed: 12.12.2025).

In Brazil, citizen science participation has expanded substantially. Estimates indicate that between 30,000 and 40,000 Brazilian birdwatchers actively contribute to observation and monitoring activities, including platforms such as eBird and WikiAves [16]. WikiAves alone documents nearly the full national avifauna, with records covering approximately 1,964 bird species, supported by millions of photographic and acoustic records generated by observers across all biomes⁶ [16]. Although individual citizen-science records may present variability in precision, their aggregation within policy and scientific frameworks significantly enhances spatial and temporal coverage of biodiversity monitoring.

National policy scale and institutionalization of birdwatching tourism

The national scale of birdwatching tourism in Brazil is evidenced by official public policy instruments. The Diagnosis of Public Policies for Birdwatching Tourism in Brazil is grounded in a survey of 2,640 respondents, encompassing professional ornithologists, amateur birdwatchers, tourism practitioners, and other stakeholders engaged in birdwatching tourism. In addition, the diagnosis mapped 308 birdwatching-related enterprises distributed across Brazilian territories and biomes, illustrating the sector's geographic reach and institutional recognition.⁷

Although the diagnosis does not quantify direct ecological regeneration outcomes, it provides robust empirical evidence of participation, territorial distribution, governance arrangements, and policy instruments. These elements constitute essential enabling conditions for regenerative outcomes, particularly when aligned with conservation policies and protected-area management frameworks.

Brazilian regenerative initiatives with quantified ecological outcomes

Brazilian literature on regenerative tourism provides further quantitative evidence linking tourism to ecological restoration. A case study of the Biofábrica de Corais in Porto de Galinhas reports the regeneration of 2,580 coral fragments, with an estimated survival rate of approximately 80%, supported by systematic monitoring and traceability mechanisms [6]. This marine ecosystem case

⁶ Everything about Birdwatching — Brazil. *Brazil. Embratur*. Brasília: Brazilian Agency for International Tourism Promotion; 2024. Available from: https://embratur.com.br/wp-content/uploads/2023/03/Brasil_Embratur_E-book_Observacao_de_Aves_Maio_2024.pdf (accessed: 12.12.2025).

⁷ Diagnosis of Public Policies for Birdwatching Tourism in Brazil. *Brazil. Ministry of Tourism*. Brasília: Ministry of Tourism; 2025. 116 p. Available from: https://www.gov.br/turismo/pt-br/acesso-a-informacao/acoes-e-programas/programas-projetos-acoes-obras-e-atividades/produtos-e-experiencias-turisticas/turismo-de-aves/diagnostico-de-politicas-publicas-turismo-de-observacao-de-aves_112025.pdf (accessed: 12.12.2025).

demonstrates that tourism-linked initiatives in Brazil can generate explicit ecological restoration outcomes when integrated with governance, scientific monitoring, and community engagement.

A broader exploratory study of regenerative tourism initiatives in Brazil analyzed four cases and reported quantified territorial scales for three of them: 6,000 hectares (Comuna do Ibitipoca), 484 hectares (Fazenda Escola Bona Esperança), and 129 hectares (Instituto Terra Luminous) [17]. While these cases do not consistently measure biodiversity recovery through standardized ecological indicators, they illustrate that regenerative tourism initiatives in Brazil may operate at meaningful territorial scales, reinforcing the relevance of governance and land management as regenerative dimensions.

Governance, connectivity, and long-term ecological resilience

From a landscape-scale perspective, evidence from conservation science highlights the importance of governance and connectivity for regenerative outcomes. Empirical analyses demonstrate that conservation strategies prioritizing ecological connectivity significantly improve biodiversity persistence and fisheries conservation outcomes across large territorial systems [7; 8]. Complementary research on natural forest regeneration in the Brazilian Amazon indicates that regeneration outcomes are strongly conditioned by institutional coordination, policy coherence, and long-term governance capacity rather than by isolated interventions [9].

Taken together, the results demonstrate that birdwatching tourism in Brazil operates within a quantitatively robust ecological and institutional context, characterized by measurable contributions to conservation financing, large-scale biodiversity monitoring, and territorially embedded policy instruments. While direct ecological restoration metrics are not consistently available for birdwatching tourism, the evidence documents multiple quantifiable mechanisms through which this activity supports regenerative-oriented outcomes within public policy frameworks. The main quantitative indicators supporting these findings are summarized in Table 2.

Table 2. Indicators relating birdwatching tourism to biodiversity and regenerative dimensions

Regenerative dimension	Indicator	Quantitative evidence	Source
Biodiversity context (Brazil)	National bird species richness	1,919–1,971 bird species recorded in Brazil, representing one of the richest avifaunas globally*	[16]
Species conservation status	Birds of conservation concern	166 globally threatened species; 289 species of conservation concern (threatened + near threatened)	[16]
Protected areas and priority sites	Areas designated for bird conservation	79,500 hectares of protected areas created in the last 20 years specifically to protect threatened birds; 237 IBAs mapped nationwide, 123 (~52%) in the Atlantic Forest	[16]

Table 2, ending

Regenerative dimension	Indicator	Quantitative evidence	Source
Conservation financing	Tourism contribution to bird conservation funding	Financial data available for 90 of 562 threatened species (16%); tourism accounts for 10–64% of conservation funding, with higher dependence for critically endangered species ($p < 0.02$)	[10]
Biodiversity monitoring (global)	Scale of citizen-science bird records (eBird)	>140 million bird observations, 150,000 observers, 10.5 million hours of field effort; annual growth of 30–40% over a decade	[14]
Biodiversity monitoring (Brazil)	Civil participation in bird observation	Estimated 30,000–40,000 Brazilian birdwatchers contributing to platforms such as eBird and WikiAves	[16]
National policy scale (Brazil)	Participation in birdwatching tourism diagnostics	2,640 survey respondents involved in national policy assessment	**
Territorial economic footprint	Birdwatching-related enterprises	308 enterprises mapped across Brazilian biomes	***
Direct ecological restoration (Brazil, marine)	Tourism-linked restoration outputs	2,580 coral fragments regenerated with approximately 80% survival rate	[6]
Territorial scale of regenerative initiatives (Brazil)	Area covered by selected regenerative tourism cases	4 cases analyzed; reported areas of 6,000 ha, 484 ha, and 129 ha	[17]
Landscape-scale resilience	Effect of ecological connectivity	Conservation strategies prioritizing connectivity significantly improve biodiversity persistence and fisheries outcomes at large territorial scales	[8]
Governance and regeneration	Conditions for natural ecosystem regeneration	Forest regeneration outcomes strongly conditioned by policy coherence, institutional coordination, and governance capacity	[9]

*Diagnosis of Public Policies for Birdwatching Tourism in Brazil. *Brazil. Ministry of Tourism*. Brasília: Ministry of Tourism; 2025. 116 p. Available from: https://www.gov.br/turismo/pt-br/acao-a-informacao/acoes-e-programas/programas-projetos-acoes-obras-e-atividades/produtos-e-experiencias-turisticas/turismo-de-aves/diagnostico-de-politicas-publicas-turismo-de-observacao-de-aves_112025.pdf (accessed: 12.12.2025); Everything about Birdwatching — Brazil. *Brazil. Embratur*. Brasília: Brazilian Agency for International Tourism Promotion; 2024. Available from: https://embratur.com.br/wp-content/uploads/2023/03/Brasil_Embratur_E-book_Observacao_de_Aves_Maio_2024.pdf (accessed: 12.12.2025).

**Diagnosis of Public Policies for Birdwatching Tourism in Brazil. *Brazil. Ministry of Tourism*. Brasília: Ministry of Tourism; 2025. 116 p. Available from: https://www.gov.br/turismo/pt-br/acao-a-informacao/acoes-e-programas/programas-projetos-acoes-obras-e-atividades/produtos-e-experiencias-turisticas/turismo-de-aves/diagnostico-de-politicas-publicas-turismo-de-observacao-de-aves_112025.pdf (accessed: 12.12.2025).

***Diagnosis of Public Policies for Birdwatching Tourism in Brazil. *Brazil. Ministry of Tourism*. Brasília: Ministry of Tourism; 2025. 116 p. Available from: https://www.gov.br/turismo/pt-br/acao-a-informacao/acoes-e-programas/programas-projetos-acoes-obras-e-atividades/produtos-e-experiencias-turisticas/turismo-de-aves/diagnostico-de-politicas-publicas-turismo-de-observacao-de-aves_112025.pdf (accessed: 12.12.2025).

Source: compiled by M.R. Pisarski Jr.

Discussion

The results of this study invite a broader reflection on how regenerative tourism should be interpreted in biodiversity-rich and policy-intensive contexts such as Brazil. Rather than framing regeneration as a direct or immediately measurable ecological outcome attributable to tourism activities, the Brazilian case suggests

that regenerative potential emerges through structural and cumulative mechanisms embedded in governance, conservation finance, and knowledge systems.

The ecological context in which birdwatching tourism operates in Brazil is marked by a pronounced imbalance between biodiversity richness and conservation risk. The coexistence of one of the world's richest avifaunas with a disproportionately high number of threatened species indicates that conservation challenges are not uniformly distributed across space. This unevenness reinforces the argument that regenerative tourism cannot be approached through generic or homogeneous strategies. Instead, tourism practices intersect with conservation priorities in territorially differentiated ways, shaped by historical land-use patterns, institutional capacity, and policy focus. In this sense, birdwatching tourism is better understood as a practice operating within priority conservation landscapes, rather than as a driver of ecological change in isolation.

From an economic perspective, the discussion of conservation financing provides an important interpretative lens. Evidence indicating that tourism revenues can constitute a substantial share of conservation funding for threatened bird species highlights a tangible mechanism through which bird-oriented tourism may support biodiversity protection. Although these financial contributions cannot be directly quantified for Brazil using the available policy data, their documented relevance in comparable contexts underscores the potential of birdwatching tourism to function as a stabilizing element within conservation funding structures. Regeneration, in this view, is linked less to physical restoration metrics and more to the continuity and reliability of resources that sustain conservation efforts over time.

Another central aspect concerns biodiversity monitoring and the role of citizen participation. The scale of observational data generated through birdwatching-related citizen science represents a qualitative shift in conservation knowledge systems. When tens of thousands of observers contribute to large, structured databases, biodiversity monitoring becomes more continuous, spatially extensive, and socially embedded. Beyond their scientific utility, these practices foster learning, environmental awareness, and stewardship, reinforcing the social foundations of conservation. From a regenerative tourism perspective, such processes contribute to the regeneration of relationships between society and ecosystems, an aspect often overlooked in conventional impact assessments.

The institutionalization of birdwatching tourism within Brazilian public policy further strengthens its regenerative orientation. National diagnostics, strategic planning instruments, and international promotion initiatives signal that birdwatching is no longer treated as an informal or marginal activity. While these policy instruments do not measure ecological regeneration directly, they document the organizational and governance conditions under which regenerative dynamics may occur. The alignment between tourism development, conservation objectives, and territorial planning reduces the likelihood of tourism-induced ecological pressure and increases the potential for positive feedback between local economies and conservation outcomes.

Brazilian experiences of regenerative tourism that report explicit ecological restoration outcomes, such as coral regeneration initiatives, offer additional interpretative insights. These cases demonstrate that tourism can be associated with measurable ecological change when embedded within robust governance frameworks, scientific monitoring, and community engagement. At the same time, the diversity of territorial scales and measurement approaches observed across Brazilian initiatives highlights the limitations of expecting standardized restoration indicators across all tourism contexts. This reinforces the relevance of policy-oriented and system-level analyses for understanding regeneration in tourism.

Finally, insights from conservation science emphasize that long-term ecological resilience depends on landscape connectivity, institutional coordination, and adaptive governance. Regeneration, whether of forests, reefs, or biodiversity systems, is shaped by multi-level policy coherence rather than isolated interventions. When birdwatching tourism operates within such connected and governed landscapes, its contribution to regeneration is indirect but potentially significant, reinforcing conservation priorities, supporting monitoring infrastructures, and aligning economic activity with long-term ecological objectives.

Taken together, the discussion suggests that birdwatching tourism in Brazil exemplifies a form of regenerative tourism not because it directly restores ecosystems, but because it strengthens the systems that enable regeneration. This interpretation advances regenerative tourism research by grounding the concept in empirical policy evidence and by highlighting the importance of governance, participation, and territorial context in shaping tourism's regenerative potential in megadiverse countries.

Conclusion

This study examined birdwatching tourism in Brazil through the lens of regenerative tourism, using national public policy evidence as its primary analytical foundation. By reinterpreting official diagnostic data and institutional documents, the research contributes to ongoing debates on how regenerative tourism can be empirically assessed beyond localized case studies or purely conceptual discussions.

The analysis demonstrates that birdwatching tourism in Brazil cannot be understood as a regenerative practice based on direct or immediate ecological restoration outcomes. Instead, its regenerative potential lies in the way it strengthens the systems that enable regeneration over time. These systems include conservation financing mechanisms, large-scale biodiversity monitoring through citizen science, institutionalized governance arrangements, and territorial planning aligned with biodiversity conservation priorities. When considered together, these elements reveal how tourism can support long-term ecological resilience without necessarily functioning as a restoration intervention in itself.

By grounding the discussion in public policy evidence, this study advances regenerative tourism research in two important ways. First, it shows that regeneration

can be analytically identified at broader territorial and governance scales, rather than being restricted to site-specific projects with explicit restoration metrics. Second, it highlights the central role of governance, participation, and policy coherence in shaping tourism's regenerative potential, particularly in megadiverse countries where conservation challenges are spatially uneven and institutionally complex.

In this sense, birdwatching tourism in Brazil exemplifies a form of regenerative tourism not because it directly restores ecosystems, but because it contributes to maintaining and reinforcing the social, institutional, and ecological conditions under which regeneration becomes possible. This perspective underscores the importance of integrating tourism development with conservation policy and knowledge systems, offering a more realistic and scalable understanding of regeneration in tourism contexts.

Future research could build on this approach by combining policy-based analyses with longitudinal ecological and socio-economic indicators, enabling a more precise assessment of how tourism-related governance mechanisms influence regeneration trajectories over time. Such efforts would further strengthen the empirical foundations of regenerative tourism and support its application in biodiversity-rich regions facing complex development and conservation challenges.

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Bio note:

Marcos R. Pisarski Jr., Researcher at Itaipu Parquetec (Itaipu Technology Park Foundation — Brazil) and Member of Brazil's National Tourism Council. PhD candidate at the University of Guadalajara (Mexico) and Professor at Goiás State University (Brazil). Itaipu Parquetec, Sustainable Tourism Laboratory, 6731, Tancredo Neves Avenue, 85867-900, Foz do Iguaçu, Paraná, Brazil. ORCID: 0000-0002-8384-7420; eLIBRARY SPIN-code: 9538-2861. E-mail: marcos.pisarski@gmail.com

Сведения об авторе:

Маркус Р. Писарски мл., исследователь Итаипу Паркетек (Фонд Технологического парка Итайпу — Бразилия) и член Национального совета по туризму Бразилии. Аспирант (PhD candidate) Университета Гвадалахары (Мексика) и профессор Государственного университета Гояса (Бразилия). Итаипу Паркетек, Лаборатория устойчивого туризма, проспект Танкранду Невиса, 6731, 85867-900, Фос-ду-Игуасу, штат Парана, Бразилия. ORCID: 0000-0002-8384-7420; eLIBRARY SPIN-код: 9538-2861. E-mail: marcos.pisarski@gmail.com