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Environment-Based Tourism Management: A Bibliometric Analysis of Research Development from 2000 to 2025

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Abstract
This study examines the development of scientific research on environment-based tourism management through a bibliometric analysis of publications from 2000 to 2025. The analysis covers 187 publications indexed in SINTA and Scopus, consisting of 17 SINTA-indexed and 170 Scopus-indexed publications. The findings indicate that research output fluctuated throughout the observation period, with relatively high publication counts recorded in 2013 and 2022, followed by lower publication activity in 2023 and 2024. Keyword network analysis identified 26 items grouped into six thematic clusters connected by 167 links. The clusters represent interconnected themes related to environmental management, sustainable tourism, tourism destinations, ecotourism, community involvement, environmental awareness, and tourism impacts. Overlay visualization indicates a thematic development from earlier attention to tourism impacts, environmental quality, and environmental awareness toward more recent emphasis on environmental sustainability, ecotourism, and destination-related issues. Density visualization shows that "environment" and "tourism management" are among the most prominent themes in the analyzed network, whereas terms such as "tourism impact," "physical environment," and "environmental quality" are comparatively less prominent. These findings provide a longitudinal overview of the intellectual and thematic development of environment-based tourism management research and identify areas that may warrant further investigation.

Keywords: Environment-Based Tourism Management, Bibliometrics, Sustainable Tourism, Ecotourism, Tourism Management.

1. Introduction

Tourism is an important sector of the economy, contributing significantly to economic growth, job creation, regional development, and the overall well-being of local communities. At the same time, the growth of tourism activities can place considerable pressure on the environment. The increasing number of visitors, the development of accommodation and transportation facilities, high consumption of energy and water, growing waste generation, and pressure on coastal areas, forests, biodiversity, and other natural resources can lead to serious ecological impacts when they are not properly managed. For this reason, tourism development can no longer focus solely on increasing visitor numbers and generating economic benefits. It needs to be guided by a more balanced approach that considers economic prosperity alongside social well-being and environmental protection. As emphasized by the United Nations Environment Programme (UNEP) and the World Tourism Organization (UNWTO), tourism can bring both positive and negative impacts to communities and the environment. Therefore, sustainability principles need to be integrated into tourism policies and planning, destination management, tourism businesses, and the everyday behavior of visitors. Ultimately, sustainable tourism is about creating meaningful experiences for visitors while ensuring that local communities and the natural environment continue to benefit and thrive for generations to come (UNWTO, 2005).

The idea of sustainable tourism has developed alongside growing global attention to the principles of sustainable development. In tourism literature, sustainability is understood not simply as maintaining the economic viability of the tourism industry, but also as a process of managing resources in ways that take into account environmental capacity, the needs of local communities, the interests of visitors, and the long-term well-being of destinations. In this context, Butler explains that the concept of sustainable tourism emerged in response to growing concerns about environmental issues and the impacts of tourism development. His work also highlights the importance of considering both the physical environment and the human environment when developing and managing tourism destinations. This perspective suggests that tourism should not be viewed only as an economic activity, but as a broader process that involves people, places, and the natural resources on which destinations depend (W. Butler, 1999). Meanwhile, Hunter views sustainable tourism as an adaptive paradigm that allows tourism development goals to be adjusted to the ecological and social characteristics of a particular area. This perspective recognizes that each destination has its own environmental conditions, community needs, and social dynamics. Therefore, tourism development should not follow a one-size-fits-all approach, but rather adapt to the unique characteristics and capacity of each destination to ensure that tourism can develop in a responsible and sustainable manner over the long term (Hunter, 1997).

within this context, environmentally based tourism management has emerged as a strategic approach to guiding destination development without compromising the quality and availability of natural resources. This approach places the environment at the heart of tourism planning and decision-making. It encompasses a range of efforts, including biodiversity conservation, resource efficiency, waste management, the control of pressure on ecosystems, climate change mitigation, and meaningful community involvement in protecting and managing local resources. Environmentally based tourism management is also closely connected to several related concepts, including ecotourism, nature-based tourism, sustainable tourism, conservation tourism, and responsible tourism. Although these concepts may emphasize different aspects of the relationship between tourism and the environment, they share a common concern: ensuring that tourism development can take place while respecting the ecological limits of destinations and the well-being of local communities. Consequently, research on environmentally based tourism is inherently multidisciplinary, bringing together perspectives from tourism studies, management, economics, geography, ecology, conservation, public policy, and the social sciences.

The need for such an approach becomes increasingly important as tourism faces the growing challenges of climate change and ecosystem degradation. Tourism has a two-way relationship with the environment. On the one hand, environmental quality is a major attraction for many destinations, shaping the experiences that visitors seek and the value that destinations offer. On the other hand, tourism activities can place additional pressure on the environment through energy consumption, water use, visitor mobility, infrastructure development, and changes in land use. Therefore, tourism sustainability requires an approach that goes beyond economic growth and considers the ability of destinations to maintain environmental quality and remain within their ecological carrying capacity. In this regard, the United Nations Environment Programme (UNEP) and the World Tourism Organization (UNWTO) have emphasized the importance of integrating sustainability into tourism policies and planning as a key step toward building a tourism industry that can remain resilient and beneficial in the long term. Such an approach recognizes that the future of tourism ultimately depends on the health of the environments and communities that sustain it (UNWTO, 2005).

The growing attention to sustainability has also contributed to the expansion of scientific literature on sustainable tourism and ecotourism. Bibliometric studies indicate that sustainable tourism has developed into a broad and increasingly multidisciplinary field of research, reflecting the growing complexity of the relationship between tourism, society, and the environment. For example, Zhang et al. analyzed 2,184 publications related to sustainable tourism and identified significant developments in research collaboration networks, citation patterns, and emerging research themes. Their findings illustrate how the field has continued to evolve as researchers from different disciplines seek to better understand the challenges and opportunities associated with making tourism more sustainable. (Zhang et al., 2022). Other bibliometric studies focusing on ecotourism have identified several major research themes, including ecological conservation, the interests and well-being of local communities, carbon footprints, and tourist behavior. These findings suggest that academic attention to the relationship between tourism and the environment has gradually expanded beyond traditional discussions of conservation. The field now encompasses a broader and more complex range of issues, including tourist behavior, community participation, climate change, governance, technology, and destination management. This broader perspective reflects a growing recognition that environmental sustainability in tourism cannot be achieved through conservation efforts alone, but requires an integrated understanding of how tourists, local communities, businesses, governments, and destinations interact with one another.

The development of research in this field can also be seen in the growing number of bibliometric studies that employ different time periods and analytical approaches. For example, Geng et al. used CiteSpace to examine the dynamic development of sustainable tourism research, its knowledge structure, collaboration patterns, co-citation networks, and the emergence of new research themes. Their approach provides a broader perspective on how knowledge in sustainable tourism has evolved over time and how different research communities have contributed to shaping the field. Such studies are valuable not only for mapping existing research, but also for identifying emerging directions and shifts in scholarly attention within sustainable tourism. (Geng, Y., Zhang, X., Gao, J., Yan, Y., & Chen, 2024). A study entitled *"Sustainable Development Goals (SDGs) Research Mapping: Insights Towards the Green Economy Era"* mapped the development of research related to the Sustainable Development Goals (SDGs). The study identified a total of 98 publications, consisting of 77 articles published in international journals indexed by Scopus and 21 articles published in national journals indexed by SINTA. The findings also indicate a significant increase in the number of publications beginning in 2020, with research output reaching its highest point in 2024. This upward trend reflects the growing academic interest in SDGs-related issues and their connection to the transition toward a greener and more sustainable economy. (Lola Malihah, Mukhlis Kaspul Anwar, Aswan Nazairin, 2025). Another study focusing on ecotourism in protected areas analyzed 1,182 articles indexed in Scopus over the period from 2002 to 2020. The findings show that research in this field has developed around several major themes, including conservation, visitor management, local communities, human–wildlife conflicts, gender, and climate change. These themes illustrate the increasingly diverse nature of ecotourism research and highlight how the development of tourism in protected areas involves not only environmental conservation, but also social, cultural, and climate-related dimensions. The findings further suggest that

effective ecotourism management requires an integrated approach that considers both ecological protection and the needs and interactions of people living in and around protected areas. (Hasana et al., 2022).

Meanwhile, Le and Nguyen analyzed 1,693 articles on ecotourism published between 2002 and 2022 and identified four major thematic clusters. These included community and stakeholder engagement; tourist perceptions and behavior; technology and environmental management; and biodiversity conservation and sustainable development. The findings highlight the broad scope of contemporary ecotourism research, where environmental conservation is increasingly considered alongside social participation, technological development, and the behavior and experiences of tourists. This thematic diversity suggests that ecotourism has evolved into a multidimensional field that requires collaboration across different perspectives to address the complex challenges of sustainable destination development. (Le & Nguyen, 2023). Another study, entitled *"Publication Trends on Green Human Resources in Indonesia: A Bibliometric Analysis,"* examined the development of research on Green Human Resources (GHR) in Indonesia using a bibliometric approach. The study analyzed a total of 91 published research documents. The network analysis identified 15 keywords related to Green Human Resources, which were grouped into four thematic clusters connected through 53 network links. Covering the period from 2000 to 2023, the findings provide an overview of how research on Green Human Resources has developed and how different concepts and themes have become interconnected within the field. This mapping also highlights the growing interest in integrating environmental considerations into human resource management and organizational practices. (Lola Malihah, 2024).

More recent research suggests that scholarly interest in sustainable tourism has continued to grow rapidly. For example, Jin and Gao analyzed 2,998 ecotourism articles indexed in the Web of Science database over the period from 2012 to 2022. Their findings indicate a significant increase in the number of publications, with major research themes focusing on nature conservation, the interests and well-being of local communities, tourist attitudes and behavior, and sustainable management. In addition, issues such as tourist motivations, social media, destination social responsibility, and the impacts of COVID-19 have emerged as important research frontiers. These developments demonstrate how ecotourism research has expanded beyond traditional conservation concerns to address the increasingly complex relationships between environmental sustainability, local communities, tourist behavior, technology, and global challenges. (Jin, Z., & Gao, 2025).

The continued development of bibliometric research can also be seen in the study by Peng et al., which analyzed 1,558 peer-reviewed articles on sustainable tourism published up to January 2025. Their findings indicate that the existing literature remains broad and somewhat fragmented, encompassing diverse thematic clusters and evolving conceptual relationships. This suggests that sustainable tourism has developed into a complex and multidimensional field, with researchers approaching the topic from a wide range of perspectives and research interests. At the same time, the diversity of themes and connections within the literature highlights the need for further research to better understand how these different areas of knowledge are related and how the field continues to evolve. (Peng, X., Fang, P., Wan, A., Lee, S., Li, Y., & Song, 2025).

Although a number of bibliometric studies have been conducted, there is still important room for further research. First, much of the existing literature has focused on sustainable tourism in general, while studies that specifically place environmentally based tourism management at the center of analysis remain relatively scattered across a range of related terms and concepts, including ecotourism, environmental management, nature-based tourism, conservation, biodiversity, climate change, and sustainable tourism. This fragmented terminology makes it challenging to develop a comprehensive understanding of how environmental management has evolved within tourism research. Second, previous bibliometric studies have covered different periods, such as 1990–2019, 2002–2020, 2002–2022, and 2012–2022. Although these studies provide valuable insights into specific periods, they do not yet offer a sufficiently comprehensive longitudinal picture of how research in this area has developed over a longer period, particularly through 2025. Third, recent developments in tourism research have introduced emerging issues such as digitalization, smart tourism, climate adaptation, destination resilience, the circular economy, responsible tourism, and community engagement. These emerging themes need to be examined in relation to environmental issues to understand how the research landscape is changing and how different dimensions of sustainability are becoming increasingly interconnected. Therefore, there is a need for a study that examines the development of environmentally based tourism management research from a more comprehensive and longitudinal perspective. By mapping the evolution of research themes, emerging topics, and relationships among key concepts over time, such a study can provide a clearer picture of how environmental concerns have developed and become increasingly integrated with the social, technological, economic, and governance dimensions of sustainable tourism.

Bibliometric analysis offers a useful way to address these research needs because it allows researchers to see how a particular field has developed over time through a systematic analysis of scientific publications. Rather than looking at individual studies separately, bibliometric analysis brings together publication data to reveal broader patterns within the field. This can include the number of publications and citations, as well as the contributions of authors, institutions, countries, and journals. It can also examine research collaboration through co-authorship, intellectual connections through co-citation and bibliographic coupling, and the relationships among research topics through

keywordco-occurrence. More importantly, bibliometric analysis can help researchers understand not only how much a field has grown, but also how its knowledge has been shaped and connected over time. It can reveal researchers and institutions that have made significant contributions, patterns of collaboration, dominant research themes, and topics that are beginning to attract greater attention. These insights can also help identify potential areas for future research. Previous bibliometric studies on sustainable tourism and ecotourism have shown that this approach can uncover the structure and changing dynamics of knowledge in ways that may not be easily captured through conventional literature reviews. In this sense, bibliometric analysis provides a broader lens for understanding how research in sustainable tourism and environmental management has evolved, interacted, and developed over time (Khanra et al., 2021a).

Considering these developments, the period from 2000 to 2025 provides a meaningful timeframe for examining how research in this field has evolved. The beginning of this period coincides with a growing recognition of the need to bring environmental concerns into tourism development within the broader international development agenda. In 2001, the United Nations Environment Programme (UNEP) and the United Nations Development Programme (UNDP) promoted the integration of biodiversity considerations into the tourism sector through guidance on good practices. This was followed in 2005 by the publication of *Making Tourism More Sustainable: A Guide for Policy Makers* by UNEP and the World Tourism Organization (UNWTO), which became an important reference for the development of sustainable tourism policies. The emergence of the Sustainable Development Goals (SDGs) further strengthened the connection between tourism, environmental conservation, inclusive development, and climate action. In 2018, UNWTO and UNDP published a report specifically examining the contribution of tourism to the 17 SDGs, while also encouraging the integration of sustainable development goals into tourism policies, investment decisions, and business activities. Taken together, these developments provide a meaningful context for examining the period from 2001 to 2025. This timeframe makes it possible to trace how research priorities have changed over time, from early concerns about conservation and environmental impacts toward broader and more interconnected issues of sustainability. It also provides an opportunity to understand how environmental, social, economic, technological, and governance perspectives have increasingly come together in shaping contemporary tourism research.

Taking these developments into consideration, this study, entitled *"Environment-Based Tourism Management: A Bibliometric Analysis of Research Development from 2000 to 2025,"* is conducted to provide a comprehensive picture of how scientific knowledge in this field has developed over time. The study aims to identify publication trends, influential articles and authors, leading countries and institutions, patterns of scientific collaboration, major publication sources, and the structure and evolution of research themes through keyword and bibliometric network analysis. Beyond mapping what has already been studied, this research also seeks to identify well-established research themes as well as emerging topics that may shape future research agendas. In doing so, the study is expected to contribute not only to the academic understanding of how the literature on environment-based tourism management has evolved, but also to a broader understanding of where the field is heading.The findings are expected to be useful for researchers, destination managers, governments, and other tourism stakeholders by providing a clearer picture of research development and emerging areas of concern. Ultimately, this knowledge can support more informed approaches to tourism planning and management that place greater emphasis on environmental sustainability while continuing to consider the social and economic needs of destinations and their communities.

2. Literature review

2.1. Sustainable Tourism

Sustainable tourism, or sustainable tourism development, is an approach to tourism development that seeks to maintain a long-term balance among economic, social, and environmental interests. This concept has evolved in response to various consequences of uncontrolled tourism development, particularly pressures on natural resources, environmental quality, and the well-being of local communities. Butler explains that *sustainable tourism* is concerned not only with the long-term viability of the tourism industry but also with the preservation of both the physical and human environments. Accordingly, the success of tourism should not be measured solely by growth in tourist arrivals or economic revenues, but also by the capacity of destinations to maintain the quality of their resources and sustain the well-being of local communities over the long term (Butler, 1999).

Hunter conceptualizes *sustainable tourism* as an *adaptive paradigm*, emphasizing that tourism development should be responsive to the specific conditions and characteristics of each destination. This perspective highlights that there is no single model of *sustainable tourism* that can be uniformly applied across all destinations. Differences in ecological, social, and economic conditions, as well as variations in environmental carrying capacity, require tourism management strategies to be adapted to the context of each destination. Through this adaptive approach, tourism development can be directed toward generating economic benefits while ensuring that the capacity of the environment and local communities to support tourism activities is not compromised (Hunter, 1997).

Furthermore, the United Nations Environment Programme (UNEP) and the World Tourism Organization (UNWTO) emphasize that sustainability should be integrated into tourism policies, planning processes, destination management, tourism business practices, and tourist behavior. Their guide, *Making Tourism More Sustainable: A Guide*

for Policy Makers, highlights collaboration among governments, tourism businesses, local communities, and other stakeholders as an essential component of achieving sustainable tourism. The guide also identifies 12 sustainability objectives and outlines a range of policy instruments that can be used to promote more sustainable tourism development (UNWTO, 2005). Over time, *sustainable tourism* has evolved into a multidisciplinary field of research. Studies have moved beyond a primary focus on environmental conservation to encompass destination management, local community involvement, tourist behavior, governance, resource efficiency, climate change, and economic sustainability. Zhang et al., for example, demonstrate that research on *sustainable tourism* has developed significantly, as reflected in the emergence of diverse collaboration networks and thematic research clusters (Zhang et al., 2022).

More recent bibliometric studies also indicate that the literature on *sustainable tourism* has become increasingly broad and complex. Geng et al. identified developments in the intellectual structure, collaboration patterns, co-citation networks, and emerging themes within *sustainable tourism* research. (Geng, Y., Zhang, X., Gao, J., Yan, Y., & Chen, 2024). Meanwhile, Peng et al. found that the *sustainable tourism* literature remains broad and fragmented, comprising diverse thematic clusters and evolving conceptual relationships (Peng, X., Fang, P., Wan, A., Lee, S., Li, Y., & Song, 2025). Based on the discussion above, *sustainable tourism* can be understood as an approach to tourism management that focuses on destination sustainability through the integration of economic, social, and environmental dimensions. Within the context of *Environment-Based Tourism Management*, environmental considerations represent a key component, as environmental quality constitutes an essential resource for the long-term viability of tourism destinations. Therefore, tourism management needs to consider environmental carrying capacity, the control of tourism-related impacts, community involvement, and economic sustainability to ensure that the benefits of tourism can be maintained over the long term.

2.2. Ecotourism And Environmental Conservation

Ecotourism is a form of tourism that emphasizes the use of natural areas while maintaining environmental protection and destination sustainability. Over time, ecotourism has come to be understood not merely as tourism activities conducted in natural areas, but also as an approach that connects tourism with ecosystem conservation, local community well-being, and increased environmental awareness. Therefore, ecotourism is closely associated with *environmental conservation*, as the long-term viability of tourism attractions largely depends on the quality and preservation of natural resources.

Environmental conservation represents one of the fundamental foundations for the development of ecotourism. Ecotourism can contribute to conservation by increasing environmental awareness, providing financial support for conservation initiatives, protecting ecosystems, and creating alternative livelihood opportunities for communities that previously depended on activities with potentially negative environmental consequences. However, such contributions do not necessarily occur automatically. Buckley indicates that although ecotourism has considerable potential as a conservation instrument, direct evidence of its conservation impacts remains limited. The existing literature has focused more extensively on conservation actions, visitor education, and community-based activities than on measuring direct impacts on wildlife populations or the biophysical conditions of the environment (Buckley, 2018).

Beyond ecological considerations, local community involvement is a critical element in the success of ecotourism. Tourism management that overlooks the interests and needs of local communities may generate conflict and reduce the social benefits derived from tourism activities. Conversely, meaningful community participation in destination management can strengthen local support for conservation while simultaneously creating economic benefits for surrounding communities. The growing body of literature indicates that *community involvement* and *stakeholder participation* have become important themes in ecotourism research. Through an analysis of 1,693 Scopus-indexed articles published between 2002 and 2022, Le and Nguyen found that the involvement of local communities and stakeholders in ecotourism management, particularly in protected areas, represents one of the major thematic clusters in this field of research (Kinter & Sherman, 2023).

On the other hand, ecotourism activities can also place pressure on the environment when they are not managed appropriately. Increased tourist mobility may lead to higher energy consumption and carbon emissions, while the concentration of visitors in environmentally sensitive areas can disturb ecosystems and threaten biodiversity. Khanra et al. identify *carbon footprint* and tourist behavior as two important themes within the ecotourism literature. This finding suggests that the sustainability of ecotourism is determined not only by conservation policies, but also by tourist behavior and the way tourism activities are planned and managed (Khanra et al., 2021). Recent research developments indicate that the relationship between ecotourism and conservation has become increasingly complex. Le and Nguyen identified four major thematic groups: community and stakeholder involvement; ecotourist perceptions and behavior; the use of technology and environmental management; and biodiversity conservation and sustainable development. These findings suggest that technology, environmental management, community participation, and conservation are increasingly viewed as interconnected components in the development of ecotourism (Kinter & Sherman, 2023).

Tourism Management, Environmental Impact, and Destination Sustainabel Tourism management plays a crucial role in

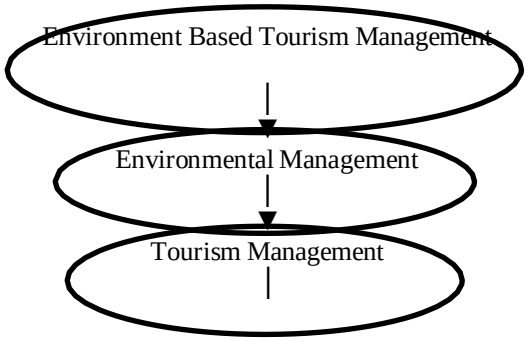
maintaining the sustainability of destinations, as tourism activities are directly associated with the use of natural resources, infrastructure development, tourist mobility, and the economic activities of local communities. Butler argues that tourism is highly dependent on the environment as one of the primary sources of destination attractiveness. However, development that is not supported by long-term planning may place increasing pressure on both the environment and local communities. Therefore, destination management needs to consider the interrelationships among tourists' needs, community interests, economic activities, and environmental capacity to ensure that tourism development remains sustainable over the long term (Butler, 2009). The environmental impacts of tourism activities may include increased consumption of energy and water, waste generation, carbon emissions, pollution, habitat degradation, and growing pressure on natural resources. Gössling et al. highlight that, despite the growing body of research on *sustainable tourism*, the tourism industry as a whole continues to face various environmental challenges and has not yet fully achieved sustainable conditions. They emphasize the importance of regulation, resource protection, environmental management, and the development of sustainability indicators as essential components of effective tourism management (Gössling, S., Hall, C. M., & Scott, 2012).

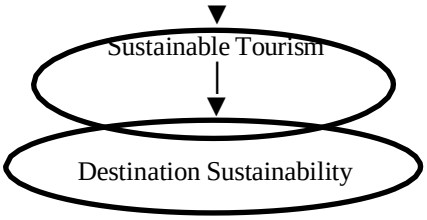
Managing environmental impacts also requires consideration of the characteristics of destinations and the shared resources utilized by both local communities and tourists. Saarinen explains that tourism sustainability is not solely concerned with maintaining economic growth, but also with preserving resources and safeguarding the interests of local communities in destinations. When shared resources are excessively exploited, environmental quality may deteriorate, ultimately affecting community well-being as well as tourists' experiences. This perspective demonstrates that destination sustainability requires governance mechanisms capable of regulating resource use while integrating the interests of diverse stakeholders (Saarinen, 2006). In the context of destination sustainability, sustainability does not simply mean preserving the environment; it also involves maintaining a balance among economic, social, and ecological dimensions. Sustainable destination management requires strategies such as improving energy and water efficiency, reducing waste, protecting biodiversity, managing the volume and spatial distribution of tourists, and developing more environmentally friendly infrastructure. Research on sustainable tourism suggests that destination management needs to integrate actions at the level of individual tourism enterprises with broader destination-wide policies in order to achieve sustainability objectives.

In addition to the roles of governments and tourism businesses, tourist behavior is also an important component in reducing environmental impacts. Through a systematic literature review of 331 publications, Li et al. found that sustainable tourist behavior has emerged as a growing area of research within the field of sustainable tourism. Behaviors such as reducing resource consumption, managing waste responsibly, using more environmentally friendly modes of transportation, and engaging in pro-environmental actions can contribute to achieving destination sustainability goals. This perspective demonstrates that destination sustainability is shaped by the interaction among management policies, tourism industry activities, local communities, and tourist behavior (Li et al., 2024). Based on the discussion above, *Tourism Management*, *Environmental Impact*, and *Destination Sustainability* are closely interconnected. *Tourism Management* functions as a mechanism for regulating tourism activities and guiding the use of resources, while *Environmental Impact* represents the consequences of tourism activities that need to be identified and mitigated. Meanwhile, *Destination Sustainability* represents the long-term objective to be achieved by balancing economic, social, and environmental interests. Therefore, destination sustainability is not determined solely by increases in tourist arrivals or economic benefits, but also by the capacity of destination managers and other stakeholders to maintain environmental quality, minimize the negative impacts of tourism, and ensure that the benefits generated by tourism can be sustained and shared over the long term.

3. Conceptual Framework

This study positions *Environment-Based Tourism Management* as a central concept that connects environmental considerations with sustainable tourism management. The keyword mapping results reveal strong thematic linkages among *environmental management*, *environmental impact*, *tourism management*, *sustainable tourism*, *ecotourism*, and *community*.





Source: Authors own elaboration

This framework indicates that environment-based tourism management is oriented toward achieving a balance between environmental management, tourism activities, and destination sustainability. Several themes, including ecotourism, environmental sustainability, and tourism destination, have also emerged as developing areas of research within this field.

4. Research Questions

Bibliometric research is not limited to quantifying the number of publications; it can also be used to identify the intellectual structure, collaboration networks, thematic developments, and research directions within a particular field. Analytical techniques such as co-authorship, co-citation, bibliographic coupling, and keyword co-occurrence are commonly employed to map the structure and evolution of a research field (Mota et al., 2024). The research questions are as follows:

1. How has research on environment-based tourism management developed in terms of publication trends from 2000 to 2025?
2. Which authors, countries, institutions, and publication sources have contributed to the development of research in this field?
3. What major thematic clusters characterize the intellectual structure of environment-based tourism management research?
4. How have research themes evolved over time based on the overlay visualization?
5. Which themes are relatively central and which are comparatively less prominent in the research network based on density visualization?

5. Significance of Study

This study is important because it provides an overview of the development of research on *Environment-Based Tourism Management* and illustrates how environmental issues and tourism management have evolved within the scholarly literature. The publication mapping demonstrates that this field has developed across diverse contexts and involves researchers from various countries, indicating that environment-based tourism management has attracted broad scholarly attention. Academically, this study contributes to the literature by identifying the key themes shaping research on *Environment-Based Tourism Management*, including environmental management, environmental impact, tourism management, sustainable tourism, ecotourism, and community. The mapping results also reveal several themes that remain relatively underexplored and therefore provide opportunities for further research. From a practical perspective, the findings can serve as a reference for researchers, destination managers, and tourism stakeholders seeking to understand the development of research in this field and identify relevant areas for further investigation. Accordingly, this study is expected to contribute to the development of tourism management approaches that place greater emphasis on environmental protection, destination sustainability, and meaningful community involvement.

6. Research Methodology

This study employs a quantitative approach using bibliometric analysis to examine the development of research on *Environment-Based Tourism Management*. The data consist of scientific publications published between 2000 and 2025, retrieved through a systematic search of scholarly publication databases. Based on the research dataset, a total of 187 publications were analyzed. The analyzed data include publication year, authors, authors' countries of affiliation, journal sources, indexing status, and keywords. The publications were classified according to SINTA and Scopus indexing to illustrate the distribution of research across different publication levels.

The analysis was conducted in several stages. First, publication trend analysis was performed to examine changes in the number of studies over time. Second, author and country productivity analyses were conducted to describe the

geographical distribution of research contributions. Third, keyword analysis was conducted using network visualization to identify relationships among keywords and the formation of thematic clusters. The dataset contained 26 keyword items, 167 links, and six clusters.

Furthermore, overlay visualization was employed to identify changes and developments in research themes over time, while density visualization was used to determine the most prominent keywords and those that remain relatively underexplored. The visualization results indicate that "environment" and "tourism management" are among the keywords with the highest density, whereas "tourism impact," "sustainable tourism management," "physical environment," "environmental quality," and "tourism development" present opportunities for further investigation. Through this approach, the study maps the temporal and thematic development of the *Environment-Based Tourism Management* literature while identifying potential directions and opportunities for future research.

7. Findings

The density visualization indicates that the keywords "environment" and "tourism management" have the highest levels of density. This finding suggests that these two concepts represent the central areas of scholarly attention within the analyzed literature. In contrast, several keywords, including "tourism impact," "sustainable tourism management," "physical environment," "environmental quality," "tourism development," and "tourist destination," exhibit relatively lower density. This pattern suggests that these themes have received comparatively less research attention and may represent areas that remain open for further investigation. These findings can be used to identify potential research gaps. Although considerable research has been conducted on the environment and tourism management, the integration of environmental quality, tourism impacts, destination development, and community participation remains an area that warrants further investigation. Such a research gap is particularly relevant because tourism sustainability is inherently multidimensional. Previous research on sustainable ecotourism has likewise emphasized the importance of examining the interrelationships among resources, local communities, and tourism activities simultaneously. Therefore, future research could focus on developing an integrated framework that brings together environmental quality, tourism impacts, community participation, sustainable tourism management, and tourism development. Such an approach could provide a more comprehensive understanding of how destinations can continue to develop while maintaining environmental sustainability and ensuring that the interests of local communities are meaningfully incorporated into tourism management.

8. Discussion

8.1. Data Presentation and Analysis

8.1.1 Research Trends in Environment-Based Tourism Management, 2000–2025

The development of research on *Environment-Based Tourism Management* reflects the growing scholarly attention to the relationship between tourism and the environment over time. Changes in the number of publications across different years provide an overview of the dynamics of researchers' interest in this topic. To illustrate this development more clearly, Table 1 presents the number and percentage of publications on *Environment-Based Tourism Management* during the period from 2000 to 2025.

Table 1. Research Trends in Environment-Based Tourism Management, 2000–2025

Publication Year	Number	Percentage
2000	5	3%
2001	7	4%
2002	8	4%
2003	3	2%
2004	4	2%
2005	5	3%
2006	6	3%
2007	9	5%
2008	7	4%
2009	9	5%
2010	6	3%
2011	10	5%
2012	10	5%
2013	13	7%
2014	11	6%
2015	12	6%
2016	7	4%

2017	12	7%
2018	10	5%
2019	6	3%
2020	3	2%
2021	5	3%
2022	13	7%
2023	3	2%
2024	3	2%
2025	-	0%
Total	**187**	**100%**

Source: Bibliographic Data Collection Using Publish or Perish

Based on the data presented in Table 1, research on *Environment-Based Tourism Management* has shown a dynamic development throughout the 2000–2025 period. Although the number of publications fluctuated across several years, the topic has generally maintained sustained scholarly attention over the study period. This pattern indicates that the relationship between tourism management and environmental considerations has become an increasingly important issue, particularly in supporting more sustainable approaches to destination management.

8.1.2 Environment-Based Tourism Management Research by SINTA Index Level

To further understand the extent to which research on *Environment-Based Tourism Management* has developed within the Indonesian scholarly publication landscape, it is important to consider not only the number of studies but also where these studies have been published. One relevant indicator is the SINTA index level of the journals in which research on this topic appears. Table 2 presents the distribution of publications by journal and SINTA index level, providing an overview of the position and distribution of *Environment-Based Tourism Management* research within Indonesia's national scholarly publications.

Table 2. Total Number of Studies on Environment-Based Tourism Management by SINTA Index Level

No.	Journal Name	Total Scientific Publications	Indeks SINTA
1	Indonesian Journal of Geography, Indonesian Journal of Halal Research	2	1
2	South East Asia Journal of Contemporary Business Economics and Law (SEAJBEL), Sriwijaya International Journal of Dynamic Economics and Business, Journal of Sustainability Science and Management, Jurnal Hubungan Internasional, Journal of Governance and Public Policy, Journal of Digital Marketing and Halal Industry, Jurnal Borneo Administrator, Indonesian Journal of Business and Entrepreneurship (IJBE), Jurnal Manajemen dan Kewirausahaan, Pena Justisia, Jurnal Kepariwisataan Indonesia, Khazanah Pendidikan Islam, LOGOS Journal, Journal of Islamic Economics and Finance Studies	15	2
Total 17			

Source: Bibliographic Data Collection Using Publish or Perish

Based on Table 2, a total of 17 scientific publications on *Environment-Based Tourism Management* were identified in SINTA-indexed journals. Of these, two publications were published in SINTA 1 journals, while the remaining 15 publications appeared in SINTA 2 journals. This distribution indicates that research on *Environment-Based Tourism Management* has gained a place in various national scientific journals with relatively strong accreditation levels. The presence of studies in SINTA 1 and SINTA 2 journals also suggests that environment-based tourism management has considerable academic relevance and continues to develop as part of the broader scholarly discourse on tourism, the environment, and sustainability.

8.1.3 Scopus-Indexed International Journals on Environment-Based Tourism Management

In addition to examining research development in national journals, mapping international publications is also important for understanding the extent to which *Environment-Based Tourism Management* has attracted attention within the global academic community. The Scopus index provides an indication of the standing and quartile classification of the journals in which relevant studies are published. Therefore, Table 3 presents the number of scientific publications identified based on their publication sources and Scopus quartile rankings.

Table 3. Number of Scopus-Indexed International Journals on Environment-Based Tourism Management

No.	Source	Total Scientific Publications	Indeks Scopus
1	Elsevier, Taylor & Francis, journals.sagepub.com, Wiley Online Library, annualreviews.org, cambridge.org, emerald.com, er.knutd.edu.ua	165	Q1
2	Irbis-nbuv.gov.ua, Taylor & Francis, emerald.com, Elsevier	4	Q2
3	Search.proquest.com	1	Q4
	Total	**170**	

Source: Bibliographic Data Collection Using Publish or Perish

Based on Table 3, a total of 170 scientific publications addressing *Environment-Based Tourism Management* were identified in Scopus-indexed sources. The majority of these publications, comprising 165 articles, were published in Q1-ranked journals, while four publications appeared in Q2 journals and one publication was published in a Q4 journal. The predominance of publications in Q1-ranked journals indicates that research on *Environment-Based Tourism Management* has developed not only in terms of publication volume but also in terms of its presence within the international academic literature. This finding suggests that the relationship between tourism management and environmental considerations has attracted substantial scholarly attention in the global research community. It also provides opportunities for further investigation into destination sustainability and more responsible approaches to tourism management.

8.1.4 List of Authors and Countries

The development of research on *Environment-Based Tourism Management* is reflected not only in the number of publications but also in the diversity of researchers and countries contributing to the development of knowledge in this field. The involvement of authors from different countries indicates that environment-based tourism management is a cross-regional research issue that extends beyond the context of any single destination. To provide an overview of the geographical distribution of these contributions, Table 4 presents a list of authors and their respective countries of affiliation.

Table 4. List of Authors and Countries

No.	Authors	Country
1	T Mihalič	Slovania
2	L Puczko, T Ratz	Hungaria
3	RW Butler	Amerika Serikat
4	SS Hassan	UK
5	P Murphy, MP Pritchard, B Smith	Australia
6	PC Reynolds, D Braithwaite	Australia
7	Y Yoon, D Gursoy, JS Chen	USA
8	P Hughes	UK
9	C Tosun	Turki
10	J Priskin	Australia
11	G Miller	UK
12	G Miller	UK
13	V Sasidharan, E Sirakaya, D Kerstetter	USA
14	X Font	UK
15	G Musa	Malaysia
16	IL Kuo	UK
17	C Ryan	New Zealand
18	BY Ahn, BK Lee, CS Shafer	South Korea

19	AM Hjalager	Denmark
20	C Arrowsmith, R Inbakaran	Australia
21	JAP de Oliveira	Brazil
22	SA Moore, AJ Smith, DN Newsome	Australia
23	T Palmer, A Riera	Spanyol
24	FJG Simón, Y Narangajavana, DP Marques	Spanyol
25	M Kajanus, J Kangas, M Kurttila	Finland
26	W Li	China
27	BW Ritchie	Australia
28	C Lim, M McAleer	Australia
29	J Buultjens, I Ratnayake, A Gnanapala, M Aslam	Australia
30	S Hudson, GA Miller	Canada
31	Y Kuvan, P Akan	Turki
32	TG Ko	South Korea
33	E Muhanna	Turki
34	J Northcote, J Macbeth	Australia
35	H Kim, MC Borges, J Chon	South Korea
36	SH Tsaur, YC Lin, JH Lin	China
37	MR Phillips, AL Jones	UK
38	HSC Choi, E Sirakaya	Canada
39	JR Oreja-Rodríguez, V Yanes-Estévez	Spanyol
40	T Baum	UK
41	D Scott, B Jones, J Konopek	Canada
42	AB Bestard, JR Nadal	Spanyol
43	L Cioccio, EJ Michael	Australia
44	KA Paskaleva-Shapira	Jerman
45	N Erdogan, E Baris	Turki
46	J Tonge, SA Moore	Australia
47	K Schianetz, L Kavanagh, D Lockington	Australia
48	S Dolnicar, F Leisch	Australia
49	TM Patterson, V Niccolucci, N Marchettini	USA
50	D Buhalis, R Law	UK
51	JRO Rodríguez, E Parra-López, V Yanes-Estévez	Spanyol
52	MC Simpson	UK
53	MV González	Spanyol
54	R Ballantyne, J Packer, K Hughes	Australia
55	E Blanco, J Rey-Maquieira, J Lozano	Spanyol
56	L Dwyer, D Edwards, N Mistilis, C Roman, N Scott	Australia
57	S Darcy, TJ Dickson	Australia
58	WC Hong	China
59	R Ballantyne, J Packer, K Hughes	Australia
60	SJ Page	UK
61	ET Byrd, HE Bosley, MG Dronberger	USA

62	J Connell, SJ Page, T Bentley	UK
63	A Collins, C Jones, M Munday	UK
64	N Frey, R George	South Africa
65	I Logar	Spanyol
66	H Erkuş-Öztürk, A Eraydın	Turki
67	V Castellani, S Sala	Italy
68	H Wang, Z Yang, L Chen, J Yang, R Li	China
69	H Han, LTJ Hsu, C Sheu	South Korea
70	R Buckley	Australia
71	L Zhong, J Deng, Z Song, P Ding	China
72	D Liggett, dkk	New Zealand
73	R Ballantyne, J Packer, LA Sutherland	Australia
74	R Ballantyne, J Packer, J Falk	Australia
75	Y Inoue, S Lee	USA
76	U Avci, M Madanoglu, F Okumus	Turki
77	RA Klein	Canada
78	S Zubair, D Bowen, J Elwin	UK
79	CH Tsai, CW Chen	China
80	A Torres-Delgado, FL Palomeque	Spanyol
81	A Reihanian, dkk	Malaysia
82	HJ Song, CK Lee, SK Kang, S Boo	South Korea
83	H Zhang, SL Lei	China
84	MC Dhiman	India
85	L Dwyer, LK Cvelbar, D Edwards, T Mihalic	Australia
86	D Rio, LM Nunes	Portugal
87	PO Do Valle, P Pintassilgo, A Matias, F André	Portugal
88	A Coghlan	Australia
89	L Cernat, J Gourdon	Belgia
90	YY Yuan	China
91	S Birdir, Ö Ünal, K Birdir, AT Williams	Turki
92	YC Huang, SJ Backman, KF Backman, DW Moore	China
93	VM Waligo, J Clarke, R Hawkins	UK
94	TD Andersson, E Lundberg	Sweden
95	J Yang, C Ryan, L Zhang	UK
96	JS Horng, MLM Hu, CCC Teng, HL Hsiao, CHS Liu	China
97	LC Leonidou, CN Leonidou, TA Fotiadis, A Zeriti	Cyprus
98	TH Lee, FH Jan, CC Yang	China
99	S Becken, KFD Hughey	Australia
100	SP Cottrell, JJ Vaske, JM Roemer	USA
101	H Ramkissoon, LDG Smith, B Weiler	Australia
102	I Mulec, N Wise	Serbia
103	T Luthe, R Wyss	Switzerland
104	S Imran, K Alam, N Beaumont	Australia

105	G Anfuso, AT Williams, JAC Hernández, E Pranzini	Spanyol
106	J Packer, R Ballantyne, K Hughes	Australia
107	F Xu, D Fox	China
108	CJ Chou	China
109	YTH Chiu, WI Lee, TH Chen	China
110	J Liu, dkk	China
111	R Komppula	Finland
112	D Stylidis, A Biran, J Sit, EM Szivas	Israel
113	B Zeng, R Gerritsen	Australia
114	Z Tang	China
115	A Martínez-Martínez, dkk	Spanyol
116	E Van der Zee, D Vanneste	Belgia
117	G Michalkó, A Irimiás, DJ Timothy	Hungaria
118	JF Molina-Azorín, dkk	Spanyol
119	T Baum	UK
120	VK Wells, dkk	UK
121	E Fraj, J Matute, I Melero	Spanyol
122	C Willis	UK
123	A Farmaki, L Altinay, D Botterill, S Hilke	Cyprus
124	S Gössling, D Scott, CM Hall	Sweden
125	H Han	South Korea
126	K Zaman, M Shahbaz, N Loganathan, SA Raza	Pakistan
127	AV Michailidou, C Vlachokostas, N Moussiopoulos	Greece
128	D Jarvis, N Stoeckl, HB Liu	Australia
129	Z Guo, L Sun	China
130	YS Wang, HT Li, CR Li, DZ Zhang	China
131	F Ali, WG Kim, K Ryu	USA
132	F Pizzitutti, dkk	Ecuador
133	S Kim, V Filimonau	UK
134	A Farmaki	Cyprus
135	PV Mathew, S Sreejesh	India
136	A Papathanassis	Jerman
137	E Goh, B Ritchie, J Wang	Australia
138	K Kiatkawsin, H Han	South Korea
139	HY Lee, MA Bonn, EL Reid, WG Kim	South Korea
140	L Su, SR Swanson	China
141	J Almeida, C Costa, FN Da Silva	Portugal
142	Y Li, C Hu, C Huang, L Duan	China
143	H Peng, dkk	China
144	N Ooi, E Duke, J O'Leary	USA
145	CHC Hsu	Hong Kong
146	M Canteiro, F Córdova-Tapia, A Brazeiro	Mexico
147	T Armenski, dkk	Serbia

148	IP Tussyadiah, D Wang, TH Jung, MC Tom Dieck	UK
149	T MacNeill, D Wozniak	Canada
150	F Higgins-Desbiolles	Australia
151	X He, D Hu, SR Swanson, L Su, X Chen	China
152	KX Li, M Jin, W Shi	South Korea
153	E Tyllianakis, dkk	UK
154	R Nepal, MI Al Irsyad, SK Nepal	Australia
155	TH Lee, FH Jan	China
156	T Kularatne, C Wilson, J Månsson, V Hoang, B Lee	Australia
157	A Martínez-Martínez, dkk	Spanyol
158	D Labanauskaitė, M Fiore, R Stašys	Lithuvania
159	J Wang, C Xie, Q Huang, AM Morrison	China
160	CK Lee, H Olya, MS Ahmad, KH Kim, MJ Oh	South Korea
161	GD Sharma, A Thomas, J Paul	India
162	D Newsome	Australia
163	O Gryshchenko, dkk	Ukraina
164	D Buhalis, MS Lin, D Leung	China
165	K Haldorai, WG Kim, RLF Garcia	USA
166	N Mejjad, A Rossi, AB Pavel	Morocco
167	M Darvishmotevali, L Altinay	Hong Kong
168	D Buhalis, D Leung, M Lin	UK
169	P Peeters, E Çakmak, J Guiver	Belanda
170	OS Nelwan, dkk	Indonesia

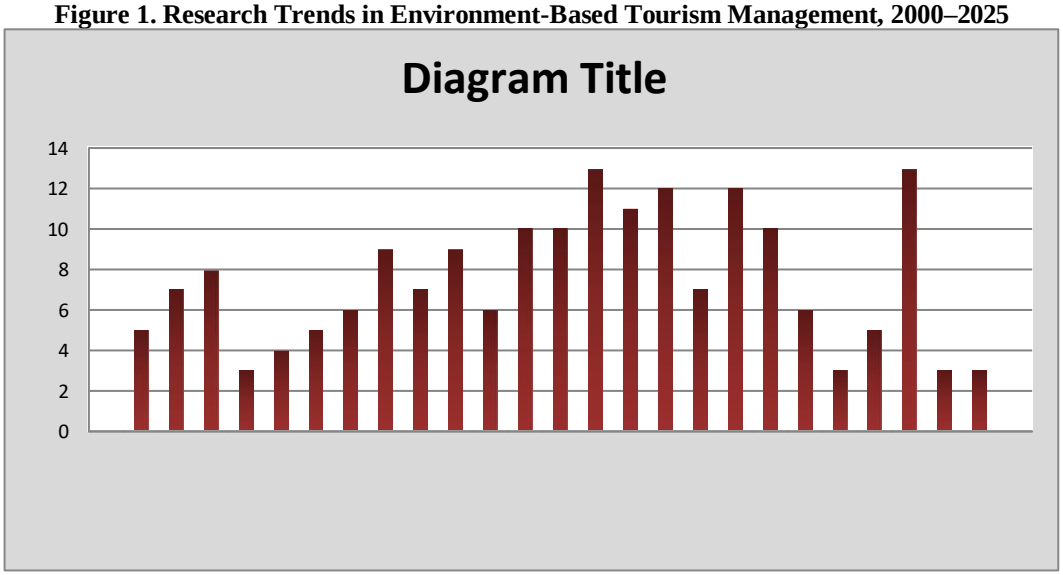
Source: Bibliographic Data Collection Using Publish or Perish

Based on Table 4, research on *Environment-Based Tourism Management* involves authors from various countries, with contributions spanning Europe, Asia, the Americas, and Australia. Australia, China, the United Kingdom, Spain, the United States, and Türkiye appear repeatedly as the countries of affiliation or origin represented in the studies included in the dataset. This geographical diversity indicates that environment-based tourism has developed into a global research issue, encompassing a range of perspectives and destination contexts. Notably, Indonesia is also represented in the dataset, indicating that Indonesian researchers have begun to contribute to the broader international discourse on tourism and environmental management. Therefore, mapping authors and their countries of origin not only illustrates the geographical distribution of research contributions but also highlights the breadth of the academic networks shaping the development of *Environment-Based Tourism Management* research.

8.1.5 Perkembangan Penelitian Tentang *Environment Based Tourism Management* 2000-2025

To gain a clearer understanding of the development of research on *Environment-Based Tourism Management*, it is important to examine how academic attention to this topic has evolved over time. Changes in the number of publications can provide an initial indication of the dynamics and consistency of research within this field. Figure 1 presents the publication trends over the period from 2000 to 2025, allowing changes in research intensity across different periods to be observed more clearly.

Figure 1. Research Trends in Environment-Based Tourism Management, 2000–2025



Source: Bibliographic Data Collection Using Publish or Perish

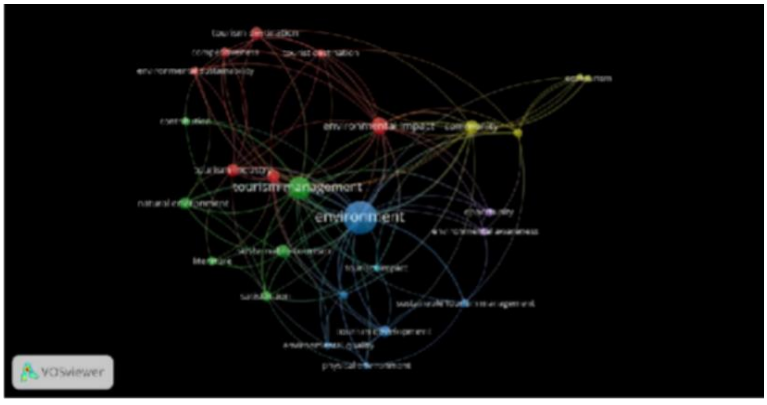
Based on the dataset analyzed, a total of 187 publications related to Environment-Based Tourism Management were identified for the period 2000–2025. Of these, 17 publications were indexed in SINTA and 170 were indexed in Scopus. The annual distribution indicates considerable fluctuations in research output rather than a continuous upward trend. The number of publications on this topic fluctuated from year to year, indicating variations in research attention over the study period. The highest number of publications was recorded in 2005, with a total of 14 publications addressing *Sustainable Performance*. However, no publications indexed in either SINTA or Scopus were identified for 2025. This absence may indicate a gap in the available indexed literature for the final year of the observation period.

8.1.6 Network Visualization Environment Based Tourism Management

Following the analysis of research development over time, the next stage of the analysis focuses on the relationships among keywords used across studies on *Environment-Based Tourism Management*. These relationships provide insights into issues that frequently appear together and reveal how different research themes are interconnected. Figure 2 presents the Network Visualization, which illustrates the connections among keywords and their distribution across several thematic clusters.

Figure 2. Network Visualization Environment Based Tourism Management

Source: Bibliographic Data Collection Using Publish or Perish



The network visualization presented above illustrates the relationships among several keywords and reveals a number of keyword clusters, each represented by a different color. The visualization consists of six keyword clusters, with a total of 167 links connecting the identified keywords. In total, 26 items are distributed across the six clusters, indicating the interconnectedness of various themes within *Environment-Based Tourism Management* research. The first cluster, represented in red, consists of seven keywords: “competitiveness,” “environmental impact,” “environmental

management," "environmental sustainability," "tourism destination," "tourism industry," and "tourist destination." This cluster reflects research themes associated with destination competitiveness, environmental management, sustainability, and the broader tourism industry. The second cluster, represented in green, comprises six keywords: "contribution," "literature," "natural environment," "satisfaction," "sustainable tourism," and "tourism management." These keywords indicate a research focus on the relationship between the natural environment, sustainable tourism, tourism management, and visitor satisfaction.

The third cluster, represented in blue, also contains six keywords: "environment," "environmental quality," "physical environment," "sustainable tourism development," "sustainable tourism management," and "tourism development." This cluster highlights the strong connection between environmental conditions and the development and management of sustainable tourism. The fourth cluster, represented in yellow, consists of four keywords: "community," "destination," "ecotourism," and "responsible behavior." This cluster emphasizes the role of communities, destinations, ecotourism, and responsible behavior in the context of environment-based tourism management. The fifth cluster, represented in purple, contains two keywords: "environmental awareness" and "opportunity." These keywords suggest a research theme related to environmental awareness and the opportunities that may emerge from integrating environmental considerations into tourism management.

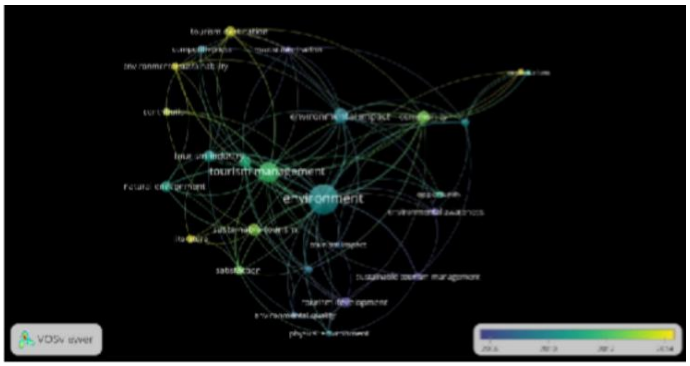
Finally, the sixth cluster, represented in light blue, contains a single keyword, "tourism impact." Although this cluster consists of only one item, the presence of "tourism impact" indicates that the environmental and broader impacts of tourism remain an important theme within the research landscape. Overall, the network visualization demonstrates that *Environment-Based Tourism Management* research encompasses interconnected themes spanning environmental sustainability, tourism development and management, destination competitiveness, ecotourism, community participation, environmental awareness, and tourism impacts. The formation of these clusters also indicates that the field has developed beyond a narrow focus on environmental impacts and increasingly incorporates ecological, managerial, economic, and social dimensions of tourism sustainability.

8.1.7 Overlay Visualization Environment Based Tourism Management

To understand how research priorities have evolved over time, it is not sufficient to examine only the relationships among keywords; it is also necessary to consider changes in the emergence of research themes across different publication periods. Therefore, an overlay visualization was employed to illustrate shifts and developments in the research focus of *Environment-Based Tourism Management* over time. Figure 3 presents these changes through variations in color, with each color representing a different period of research.

Figure 3. Overlay Visualization Environment Based Tourism Management

Source: Bibliographic Data Collection Using Publish or Perish



The data were subsequently presented through an overlay visualization, which was used to examine research trends and changes over time by observing differences in color assigned according to publication year. In this visualization, keywords represented by bright yellow indicate the most recent years within the dataset. As shown in the figure, keywords such as "tourism destination," "environmental sustainability," "contribution," "literature," and "ecotourism" appear in brighter yellow, suggesting that these topics represent more recent areas of research interest and remain relevant in contemporary studies related to Environment-Based Tourism Management. Keywords displayed in green are relatively concentrated around terms such as "sustainable tourism," "satisfaction," "community," "opportunity," "tourism management," "natural environment," "tourism industry," "competitiveness," and "environmental impact." This pattern suggests an increasing research focus on these themes, particularly around the mid-2010s to 2012, within the broader context of Environment-Based Tourism Management.

Meanwhile, the dark blue keywords are primarily associated with terms such as "tourist destination," "tourism impact," "environmental awareness," "sustainable tourism management," "tourism development," "environmental

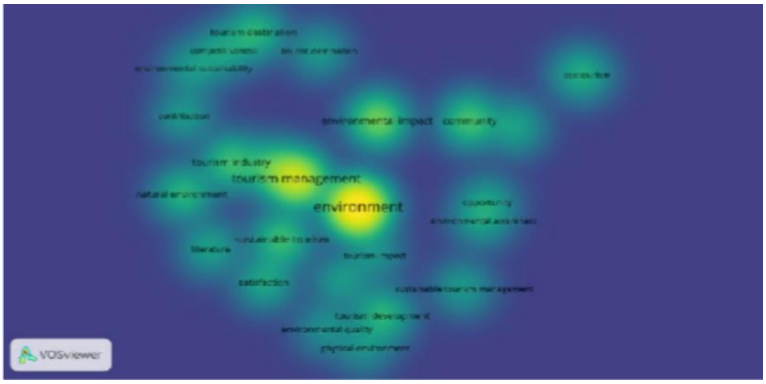
quality," and "physical environment." Their distribution indicates that studies published approximately between 2008 and 2010 tended to focus more strongly on these issues and keywords in examining Environment-Based Tourism Management. Overall, the overlay visualization illustrates a gradual evolution in research interests, from early discussions concerning tourism impacts, environmental awareness, and environmental quality toward more recent concerns related to environmental sustainability, ecotourism, and destination-oriented tourism research.

8.1.8 Density Visualization Environment Based Tourism Management

In addition to examining the relationships and development of keywords, it is also important to assess the level of scholarly attention given to each research theme. Density visualization provides an overview of the keywords that have received the greatest research attention, as well as those that remain relatively underexplored. Thus, this visualization can help identify themes that have been extensively discussed while also revealing potential research gaps and opportunities for further investigation.

Figure 4. Density Visualization Environment Based Tourism Management

Source: Bibliographic Data Collection Using Publish or Perish



Density visualization illustrates the intensity of research attention associated with particular keywords. The brighter the color representing a keyword, the more frequently that keyword has been studied, whereas keywords displayed in less prominent or dimmer colors indicate areas that have received comparatively limited scholarly attention. As shown in the figure above, the most prominent keywords in the density visualization are "environment" and "tourism management." Their brighter appearance indicates that these topics have received substantial research attention, with a wide range of studies addressing issues related to Environment-Based Tourism Management. This finding suggests that these keywords represent relatively well-established areas within the existing body of literature.

In contrast, keywords such as "tourism impact," "sustainable tourism management," "physical environment," "environmental quality," "tourism development," and "tourist destination" appear less prominent in the visualization. This relatively lower density suggests that these topics have received less scholarly attention and that the existing research addressing them remains comparatively limited or less diverse. Therefore, these keywords may provide valuable opportunities for future research, particularly for researchers seeking to explore less extensively studied dimensions of Environment-Based Tourism Management. Further investigation of these topics could contribute to expanding the existing literature and developing a more comprehensive understanding of the relationship between environmental considerations and sustainable tourism management.

9. Conclusion

This study mapped the development of research on Environment-Based Tourism Management from 2000 to 2025 using bibliometric analysis. The findings demonstrate that research activity fluctuated considerably over the observation period, with relatively high publication output in several years, particularly 2013 and 2022. The dataset consisted of 187 publications, including 17 SINTA-indexed and 170 Scopus-indexed publications.

Keyword network analysis identified 26 items organized into six thematic clusters. These clusters demonstrate that environment-based tourism research encompasses interconnected dimensions of environmental management, sustainable tourism, destination management, ecotourism, community involvement, environmental awareness, and tourism impacts. The findings therefore indicate that the field is multidimensional rather than being limited to environmental conservation alone.

The overlay visualization further indicates a temporal development in research themes. Earlier research was comparatively associated with tourism impacts, environmental awareness, environmental quality, and tourism development, while more recent themes include environmental sustainability, ecotourism, and destination-related issues.

The density visualization shows that "environment" and "tourism management" are relatively prominent within the network, whereas several environmental-quality and tourism-impact-related terms are comparatively less prominent. These findings contribute to the literature by providing a longitudinal mapping of the thematic structure and development of environment-based tourism management research. Future empirical studies may investigate how environmental quality, tourism impacts, community participation, destination management, and sustainability outcomes interact in specific tourism destinations. Such research could complement bibliometric findings by providing empirical evidence regarding how environmental principles are implemented in tourism management practices.

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