
The Development of Ecotourism Studies in Indonesia: A Bibliometric Analysis of National and International Publications

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Abstract: This study aims to analyze the dynamic development of ecotourism research in Indonesia, both at the national and international levels, over the period from 2010 to 2025. Using a bibliometric approach, this research aims to map research trends, scientific collaborations, and dominant themes in ecotourism in Indonesia. The main focus of this study is to identify the gaps between national and international publications and to evaluate the contribution of Indonesian scientists to the global knowledge development of ecotourism. This study employs a bibliometric approach that involves data collection from Google Scholar using keywords such as "sustainable tourism," "ecotourism," "Indonesia," and "green tourism." The collected data is then filtered to remove irrelevant publications and duplicates. VOSviewer is used to analyze and visualize scientific collaboration networks, co-citation patterns, and keyword analysis. The study also includes co-word analysis to identify the major themes dominating ecotourism research and to measure the gaps in the existing literature. The findings of this study reveal that although there has been a significant increase in ecotourism publications in Indonesia, there remains a gap between national and international research. This indicates the need for more intensive collaboration at the global level. The implications of this research highlight the necessity to strengthen research capacity in Indonesia through cross-disciplinary and cross-national collaborations, as well as the importance of a multidisciplinary approach in ecotourism research to enrich Indonesia's scientific contribution to sustainable tourism studies.

Keywords: Ecotourism, Bibliometric, Green Tourism, Sustainable Tourism, Indonesia

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INTRODUCTION

Ecotourism is now seen as a crucial pillar in the effort to achieve sustainable tourism, as it unites the interests of environmental conservation, the strengthening of local community capacity, and the dynamics of regional economic growth. Indonesia, with its remarkable ecological and cultural diversity, offers ample space to design ecotourism practices that are not only environmentally friendly but also socially just. This situation places ecotourism studies as both a scientific and policy necessity, particularly for developing countries facing the complexity of interactions between environmental and social aspects. While various studies have explored ecotourism issues thematically, there has been a limited examination of the development of the literature in a comprehensive and structured manner, both at the national and global levels. The use of a bibliometric approach within the framework of a systematic literature review (SLR) presents an opportunity to provide a more objective overview of research directions, scientific networks, and thematic patterns that continuously transform within ecotourism studies (Haryanto et al., 2024). Several bibliometric studies on ecotourism in Indonesia have begun to emerge, yet their analytical depth remains varied. Previous studies have attempted to emphasize that ecotourism plays a strategic role in preserving the environment while simultaneously strengthening local community capacity through participatory approaches at the global level. For instance, a bibliometric analysis of the development of ecotourism and sustainable tourism research based on Google Scholar, supported by tools such as VOSviewer, successfully identified thematic clusters such as marine ecotourism, local community dynamics, and destination governance. However, these studies were still cross-national in scope and did not focus specifically on the Indonesian context (Hasana et al., 2022). Another bibliometric study exploring research developments within Indonesia shows that conservation and ecotourism issues remain central, accompanied by multidisciplinary collaboration patterns between authors and institutions working in environmental and sociology fields. However, the scope has not clearly distinguished the contributions of national and international publications to the knowledge landscape. Some local studies, such as literature analyses discussing the implementation of ecotourism principles in various natural destinations in Indonesia, are still narrative and have not utilized a bibliometric quantitative approach (Kawuryan et al., 2022).

Bibliometric methods, in fact, provide a strong foundation for objectively analyzing the development of a scientific discipline. Through this approach, researchers can map publication patterns, author and institution collaboration networks, and thematic structures based on measurable quantitative indicators. It is no surprise that bibliometrics is increasingly used to identify research evolution, key actors, and dominant themes in a field (Khanra et al., 2021). This also highlights a methodological gap in Indonesian ecotourism studies, namely the absence of systematic efforts to quantitatively and comprehensively read scientific dynamics. On the other hand, national academic dynamics present additional challenges, such as the high prevalence of publications in predatory journals. This issue, which has gained substantial attention in wider academic discourses, highlights how rigid career progression criteria and institutional pressures frequently push researchers toward instant yet substandard publication routes (Setyadi et al., 2012). This phenomenon has the potential to undermine scientific standards, further underscoring the absolute necessity of rigorous bibliometric analysis capable of evaluating the quality, structural credibility, and citation integrity of publication sources in ecotourism studies (Donthu et al., 2021). At the same time, international

collaboration continues to rise, both through joint publications and the exchange of strategic ideas related to conservation-based tourism area management (Hall, 2019). (Setyadi et al., 2012) emphasized that the success of ecotourism is significantly influenced by the synergy between government, local communities, and the private sector, along with adaptive policies sensitive to ecological balance and economic needs. This argument further clarifies the urgency of the need for scientific mapping that not only records quantitative research trends but also assesses the peer-reviewed reputation and structural contributions of various global knowledge sources (Zupic & Čater, 2015). Based on this foundation, the need for a bibliometric analysis comparing national and international publications on ecotourism in Indonesia becomes increasingly urgent. This effort aims not only to map quantitative aspects such as publication counts, dominant actors, or key terms but also to assess the contribution of Indonesian scholars on the global academic stage and identify potential research synergies and areas for further exploration. Moreover, the findings of this study are expected to serve as a comprehensive reference for researchers, practitioners, and policymakers in formulating more collaborative, relevant, and adaptive research agendas in response to global challenges such as environmental conservation, climate change, and community empowerment (Hamidi et al., 2023).

METHODS

This study applies a bibliometric approach to examine the global dynamics of ecotourism studies in Indonesia based on both national and international publications from 2010–2025. The choice of this method is based on its capacity to assess the development of a discipline, identify influential authors and works, and uncover research directions and gaps that have yet to be explored. Data is sourced from Google Scholar using keywords such as "sustainable tourism," "ecotourism," "Indonesia," and "green tourism," which are searched through titles, abstracts, topics, and related keywords. Data curation is strictly conducted to remove duplicates and publications irrelevant to the study's focus. Bibliometric analysis is performed using VOSviewer to map scientific collaboration networks, co-citation patterns, and keyword co-occurrence through co-word analysis. This analytical approach follows the latest methodological recommendations emphasizing the importance of reproducibility, transparency, and depth of interpretation in bibliometric studies (Donthu et al., 2021).

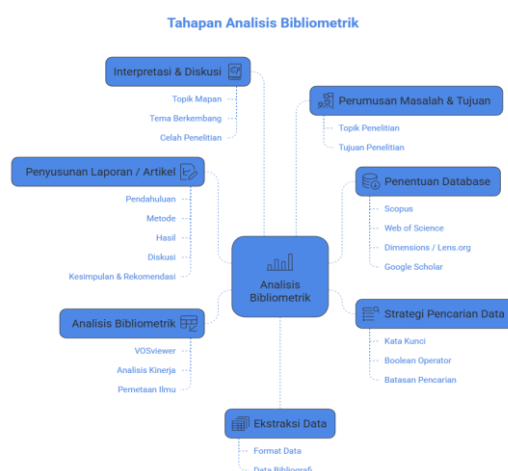


Figure 1. Bibliometric Analysis Stages
 Source: Authors, 2025

The use of bibliometrics in this research aims not only to illustrate research trends but also to trace how the thematic dynamics of ecotourism have evolved both in national and global contexts. With this framework, the research is expected to present a scientific overview that is not merely descriptive but also capable of identifying research areas that should be further explored in the future. Data collection is conducted through national and international databases, including Google scholar. Inclusion criteria consist of journal articles and conference proceedings in either Indonesian or English published between 2010 and 2025 and directly related to the topic of ecotourism in Indonesia. Meanwhile, duplicate publications and articles unrelated to the research theme are excluded through a process of exclusion.

This visualization includes topic maps, theme changes over time, author and institution relationships, and the identification of research gaps that are still open for development. Additionally, CiteSpace is used to generate knowledge mapping and detect citation bursts, which mark the increased scientific attention to certain issues during specific periods. Citation normalization is conducted following the proposed principles to allow for proportional comparisons across disciplines (van Eck & Waltman, 2010).

Through this approach, the research aims to construct a comprehensive knowledge map related to the evolution of ecotourism studies in Indonesia, through both national and international publications. The integration of bibliometrics and systematic literature review (B-SLR) provides a more comprehensive conceptual foundation for formulating relevant future research directions (Donthu et al., 2021). The analysis is conducted through four main stages: (1) data collection, (2) filtering publications according to criteria, (3) examining bibliometric attributes, and (4) visualization and analysis of results. Metadata from Google Scholar is extracted using Publish or Perish (PoP), before being visualized through VOSviewer and CiteSpace. In addition to mapping scientific structures, this study also applies citation burst detection to identify publications that have experienced a drastic increase in citations, as an indicator of the emergence of new themes in ecotourism studies (AJI et al., 2024). The validity of thematic clusters is evaluated using the modularity Q and silhouette score indicators to ensure that the clusters formed are stable and have a strong scientific basis (Xie et al., 2023).

The final stage, as shown in Figure 1, involves further data cleaning to ensure that the publications analyzed align with the research focus. The entire analysis process, including the mapping of academic networks, co-citation, co-word analysis, and detection of new themes, is comprehensively interpreted to present the knowledge structure, research developments, and strategic recommendations for the future development of ecotourism in Indonesia. This approach allows for a deeper reading of research directions and helps predict future trends in ecotourism studies, both at the national and international levels (Riswano et al., 2025).

RESULT AND DISCUSSION

A bibliometric analysis of ecotourism publications in Indonesia from 2010 to 2025 reveals a highly dynamic growth in research. Of the 998 documents identified through Google Scholar, 712 publications were deemed suitable after rigorous screening for duplicates and content relevance. This trend indicates a significant increase in scientific output since 2015, coinciding with the global discourse on sustainability and the growing adoption of community-based tourism approaches

in Indonesia (Ruhanen et al., 2015). The surge also reflects the research response to national policies aligned with the SDGs agenda, particularly in natural resource management and conservation (Xie et al., 2023).

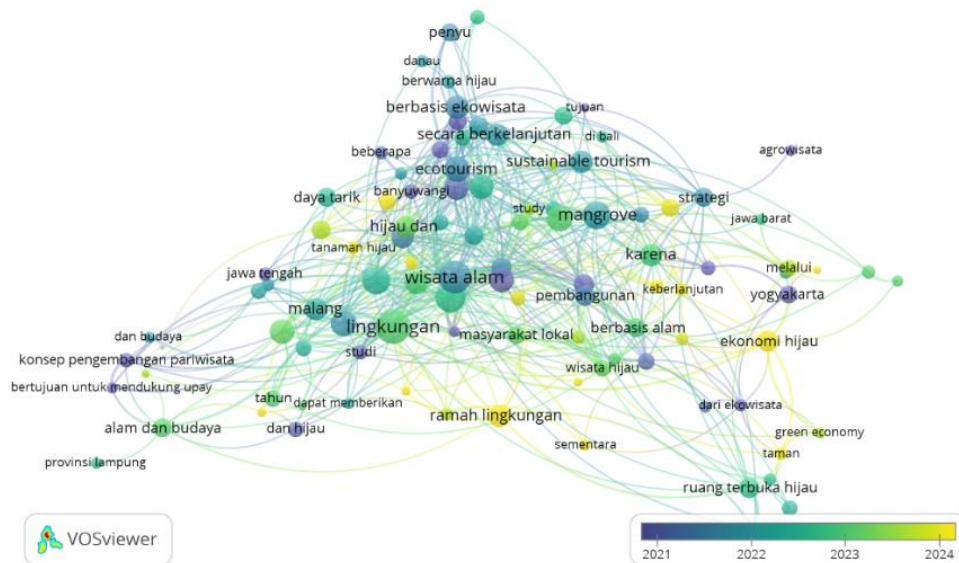


Figure 2. Overlay Visualization VOSviewer
 Source: Authors, 2025

Keyword analysis using VOSviewer highlights the differing focus patterns between national and international publications. Figure 2 shows that national publications are dominated by terms such as "ecotourism," "green tourism," "community-based tourism," and "conservation," while international publications feature keywords like "sustainable tourism," "Indonesia," and "biodiversity conservation." The network visualization reveals three main clusters: the environmental and conservation cluster, which focuses on national parks and biodiversity (Jiao et al., 2025). the socio-economic cluster emphasizing local community empowerment (Ruhanen et al., 2015). and the policy and sustainable destination governance cluster (Zupic & Čater, 2015). The prominence of keywords such as "sustainability" and "empowerment" marks a shift towards a multidimensional research approach integrating social, economic, and ecological aspects (Shofi'unnafi & Kusuma, 2023). These findings also highlight the gap between national and international research scopes. International publications tend to be more multidisciplinary, while national ones are more focused on destination management. This emphasizes the need for collaborative research that transcends disciplinary and national boundaries to enhance Indonesia's scientific contributions to the global ecotourism discourse.

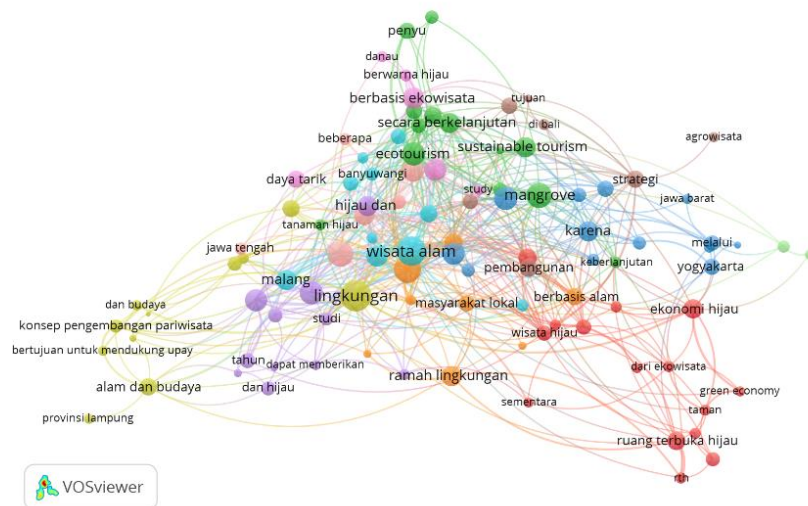


Figure 3. Overlay Visualization VOSviewer
Source: Authors, 2025

Co-citation analysis in Figure 3 shows that influential publications are primarily published in journals like the *Journal of Sustainable Tourism*, *Tourism Management Perspectives*, and *Sustainability* (MDPI). Significant works by (Luekveerawattana, 2024) appear to be major references in the development of sustainable ecotourism concepts. Co-word analysis identifies four dominant themes: protected area management, community empowerment, sustainable tourism governance, and the use of technology and innovation. These themes affirm that ecotourism research serves not only as a conservation tool but also as a mechanism for socio-economic development based on local potential (Kusumastuti et al., 2025).

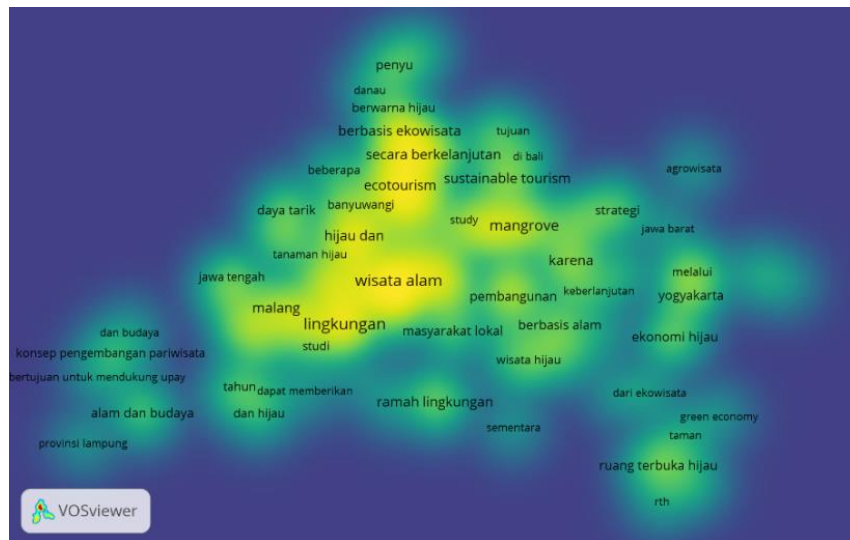


Figure 4. Density Visualization VOSviewer
Source: Authors, 2025

Figure 4 presents a density visualization map of keywords in ecotourism development studies using VOSviewer. This visualization shows the research topic density through color gradients, where yellow represents areas with high keyword frequency, and blue indicates topics with lower frequency. The pattern reveals that

terms such as nature tourism, environmental studies, and ecotourism are at the core of the highest density areas, confirming their dominant role in the ecotourism literature. Conversely, concepts like agro-tourism and green open spaces are located in green to blue areas, suggesting these topics are still in the growth phase and require further exploration. This density visualization not only identifies core research themes but also opens space for identifying underexplored issues. Despite the increasing number of publications, bibliometric analysis reveals several research gaps that need scholarly attention. First, longitudinal research on the long-term impacts of ecotourism on local community well-being is still scarce. Second, the integration of geo-spatial approaches and data analytics for mapping carrying capacities and potential areas remains underutilized (Pariwisata & Jakarta, 2025). Third, collaboration patterns among researchers, local governments, communities, and the private sector remain limited, hindering the development of evidence-based policy.



Figure 5. Publication Growth Graph by Year
 Source: Authors, 2025

Starting from 2019, the volume of publications on Indonesian ecotourism experienced a substantial surge, continuously climbing until it reached its zenith in the [2024, 2025] interval with a total of 242 publications. This remarkable growth reflects an intensifying academic interest, expanding institutional support, and a higher prioritization of sustainable tourism research in recent years. The upward trajectory up to 2025 demonstrates that ecotourism remains a highly dynamic and expanding field of study in both national and international repositories.

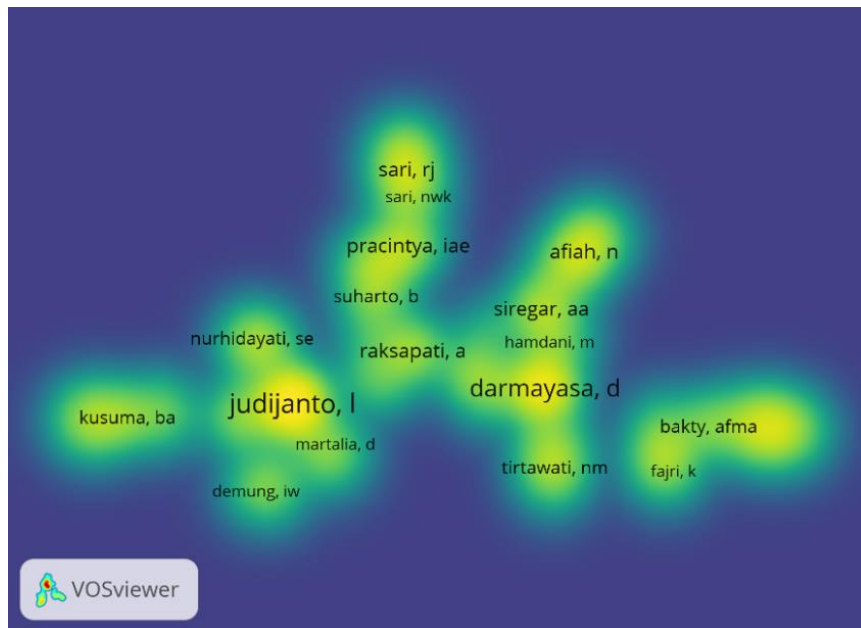


Figure 6. Visualization of Author Collaboration Density
Source: Authors, 2025

The co-authorship network analysis highlights several central figures driving ecotourism research in Indonesia, most notably Judijanto and Darmayasa, alongside prominent clusters led by Nurhidayati et al. Judijanto's position as a core node is primarily attributed to his extensive publications focusing on the economic valuation and strategic management of sustainable tourism, bridging various institutional collaborations. Meanwhile, Darmayasa serves as a critical intellectual anchor through his specialized research on community-based ecotourism (CBET) models and local governance in conservation areas. The high density of citations surrounding Nurhidayati et al. further underscores their foundational contribution to defining the ecological impacts and carrying capacity frameworks within Indonesian coastal ecotourism. Integrating these distinct yet complementary research streams explains their central positioning in the collaborative landscape. This visualization provides a comprehensive overview of key actors in the development of ecotourism research and highlights potential opportunities for enhancing future collaborative efforts.

These findings underline the urgency of enhancing research capacity through cross-institutional networks and strengthening quantitative and spatial approaches in ecotourism research.

Moreover, this interaction pattern suggests that Indonesia's scientific contributions are gaining international recognition and becoming integrated into the global discourse on sustainable tourism (van Eck & Waltman, 2010). This bibliometric approach is expected to provide a more solid conceptual foundation for developing sustainable destination management policies in Indonesia.

CONCLUSION

The bibliometric analysis conducted reveals that publications on ecotourism in Indonesia have steadily increased from 2010 to 2025, thereby answering the first research question (RQ1) regarding the positive growth trend and shifting dynamics of research in this field. International publications also demonstrate a much broader collaborative network compared to national publications, addressing RQ2 and highlighting a distinct research capacity gap between the national and international

domains. Furthermore, the results of the co-word analysis identified key themes such as environmental conservation, community empowerment, and community-based tourism as the primary scientific focus, providing a clear empirical answer to RQ3. Overall, these findings illustrate that the ecotourism knowledge landscape in Indonesia is developing rapidly, yet it remains insufficiently integrated into the mainstream global research flow. The existing gap between national and international publications suggests the need for strengthening cross-country collaborations, enhancing methodological capacity, and expanding multidisciplinary approaches. These efforts are not only essential for enriching Indonesia's scientific contributions on the international stage but also for solidifying the foundation for evidence-based sustainable tourism policy-making that is relevant to national development needs.

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