



Ecocriticism And Literature: A Bibliometric Analysis Based on the Scopus Database (2005–2025)

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ABSTRACT

This paper presents a bibliometric analysis of Scopus-indexed publications on ecocriticism and literature from 2005 to 2025. Using the Bibliometrix package (Biblioshiny) in RStudio, we analysed 1,108 documents to track the field's growth, trace its intellectual structure, and detect its key trends. Our findings show an annual growth rate of 19.15%, with the Anthropocene and climate fiction (cli-fi) emerging as priority topics. Strategic maps helped us classify the field's driving themes and emerging directions. Overall, the results show that ecocriticism has moved past classical literary analysis toward an interdisciplinary ecological paradigm. We hope this analysis results in a useful conceptual guide for future research.

KEYWORDS

Ecocriticism; literature; bibliometric analysis; Scopus; Bibliometrix; ecological humanities.

INTRODUCTION

In recent decades, ecocriticism has emerged as one of the most rapidly developing areas within literary studies. This field examines the relationship between literary texts and the natural environment, enabling the analysis of the cultural and ideological foundations of human attitudes toward nature (Buell, 2005; Cambridge University Libraries, 2026; Glotfelty & Fromm, 1996; Han, 2025). The intensification of global environmental challenges, including climate change, biodiversity loss, and environmental pollution, has heightened the relevance of nature and ecology in literary scholarship. Consequently, ecocriticism now serves not only as a tool for literary analysis but also as a significant scientific approach for investigating environmental sensibility and cultural values.

Ecocriticism, which has become one of the newest and most influential revisionist directions in the system of humanitarian education, is a key constituent of modern science. In the current era, when global ecological crises and anthropogenic disasters are rampant, the inadequacy of solely technological solutions is clearly felt. To overcome this impasse, there is a need to radically renew humanity's fundamental attitude towards the natural environment. Literature, as a mirror of life, does not remain outside this process and plays an important role in understanding environmental issues. The image of nature, long marginalised in literary theory, has taken on a new depth of meaning with the advancement of ecocriticism. The field, which has been a global scholarly movement for nearly three decades, keeps expanding its conceptual framework (Mishra, 2016).

Ecocriticism is a major theoretical concept that studies the interactions of literary works and the natural environment (Tajane et al., 2024). Recently, the aggravation of global environmental problems and the importance of literature in developing human awareness of the environment have increased the relevance of this field. Against the backdrop of the challenges of the Anthropocene, the ecocritical approach shows that literary works not only reflect nature but also directly participate in ecological discourses and clarify the unity between humanity and the biosphere. Therefore, nature motifs in literature have become an effective mechanism for changing public opinion and increasing environmental accountability in the face of climate crises and biodiversity conservation (Tajane et al., 2024).

In the last decade of the twentieth century, ecocriticism emerged as an independent school of literary studies. Initially, this movement was mainly a gathering place for researchers of the national literature of the United States. To scientifically substantiate the new direction, researchers created the Association for the Study of Literature and Environment (ASLE) and began to publish the *ISLE: Interdisciplinary Studies in Literature and Environment Journal*. The establishment of the field as a scientific institution was greatly facilitated by the publication of the collection 'The Ecocriticism Reader' initiated by Sheryl Glotfelty in 1996 and the international conferences held regularly since 1995. Today, ASLE has become a large world-class organisation, and the large number of young scientists among its members demonstrates the long-term visionary and inventive nature of this humanitarian discipline (Tošić, 2026).

Founded as a component of the ecological wave at the end of the last century, this direction has a complex character, combining such fields as natural science, ethics, and cultural studies. Originally developed in the context of Western (US, UK) literature, ecocriticism has undergone a considerable transformation. Today, this field constitutes a large international research space that comprehensively considers the literature of different peoples, broad cultural values, and worldwide environmental challenges (Tajane et al., 2024).

The term 'ecocriticism' was introduced into scientific circulation in 1978 by William Rückert in his work 'Literature and Ecology: An Experiment in Ecocriticism'. The etymology of the term is derived from the Greek words 'oikos' (home or a common place) and 'logos' (scientific thought), and it means the critical analysis of the representation of the environment in literature. While Rückert sees ecocriticism as a projection of ecological laws in literary studies, Lawrence Buell describes this direction as a discipline that studies the relationship between literature and the environment based on ecological practices. The main feature that distinguishes ecocriticism from simple nature writing is its high ethical responsibility and its desire to establish a dialogue between the human and non-human world. Based on the concepts of Joseph Wood Crutch and Patrick D. Murphy, this field is an interdisciplinary criticism that is not limited to describing flora and fauna, but rather examines the integrity of humans with nature and the elaborate relationships in their interactions (Mishra, 2016).

The term 'ecocriticism' arose from the intersection of ecology and literary studies. The 'eco' component here denotes the relationship between living things and the environment, and the main goal of the direction is to study the reflection of the relationship between man and the natural environment in literary texts. This interdisciplinary field, which combines natural science and humanities, does not recognise any genre restrictions, so its scope of research is very wide.

A group of prominent scholars, including Lawrence Buell, Sheryl Glotfelty, Simon K. Estok, and Glen A. Love, made invaluable contributions to the formation of the field (Tošić, 2026). Although the field of ecocriticism has been established as an independent literary school of criticism since the 1990s, its theoretical framework and research scope are constantly transforming. Initially developed only within the framework of American and British literature, this direction has today become a large international space that considers the literature of different peoples, broad cultural values, and global environmental issues in a unified way (Tajane et al., 2024).

Ecocriticism has advanced greatly since its inception in the 1990s. Researchers regularly depict its evolution as three overlapping 'waves' (a metaphor popularised by Lawrence Buell). The first wave, approximately from the 1980s to mid-1990s, focussed on nonfiction nature writing (e.g., Henry Thoreau, Annie Dillard), wilderness themes, Romantic poetry (e.g., Wordsworth), and nonhuman nature. It presented pastoral and natural settings via an earth-centred (ecocentric) lens, emphasising literature's reflection of human-environment relationships and drawing on ecology, deep ecology, and social ecology.

The second wave, beginning in the mid-1990s, included a variety of genres (fiction, poetry, and popular culture), urban/suburban settings, multicultural perspectives, and environmental justice. It focussed on eco-injustice in marginalised populations, environmental racism, resource imbalances, and urban deterioration, moving away from celebratory nature views and towards critiques of crises and social inequalities.

The third wave from the late 2000s to 2010s, transnationalised the field, crossing national boundaries to include global issues, ethnic differences, and comparative perspectives. This wave includes postcolonial ecocriticism (colonial exploitation legacies, Global South resource extraction, and imperialism intersections), material ecocriticism (nonhuman matter agency and human-nonhuman entanglements), posthumanism, eco-cosmopolitics, climate narratives, planetarity, Anthropocene entanglements, and 'slow violence' (Rob Nixon). It draws on ecofeminism, phenomenology, biosemiotics, and Global South/Indigenous literatures (for example, *tiNai* ecology in Tamil philosophy, and Chinese classical eco-aesthetics).

Today, ecocriticism brings together literary traditions from around the world, along with diverse cultural values and global environmental issues. What started as an Anglo-American movement has become a much broader, wider, and more inclusive field? This shift matters because it shows how literary studies can interact with real-world ecological problems. However, the rapid growth of publications on the topic of 'ecocriticism and literature' in the last 20 years requires the systematisation of the accumulated knowledge in this field and the quantitative and structural assessment of its development trends. Its cross-disciplinary nature and wide scope, which do not recognise genre restrictions, require a new intellectual map for researchers (Tošić, 2026).

The thematic development identified in the bibliometric analysis coincides precisely with the rapid interdisciplinary expansion of science in the environmental protection system. Olawumi et al. (2024) has highlighted the connections between environmental ethics, education, and cultural values, and has shown that integrating environmental ethics into education can strengthen sustainable relationships between people and the environment. This important perspective supports and informs the broader conceptual development of ecocriticism that goes beyond purely literary analysis and addresses issues of environmental responsibility, ethical relationships, and sustainable development.

Recent bibliometric evidence verifies and quantifies the planet's fast expansion. Yadav and Sinha (2024) examined 1,615 papers from Scopus and Web of Science (1994–2023) and found a significant increase in output after 2014, driven by the combination of postcolonial ecocriticism, material ecocriticism, and Anthropocene narratives. Their keyword analysis also identified 'climate change', 'Anthropocene', and 'cli-fi' as dominant clusters, showing the

transition from Anglo-American nature writing to international and posthumanist ideas. Parallel works on comparable themes (e.g., ecocentrism) emphasise the field's interdisciplinarity with environmental justice, native knowledge systems, and digital humanities (Setiawan, 2025). According to Tajane et al. (2024) and Tošić (2006), ecocriticism has evolved from its Western start to a worldwide ecological humanities paradigm capable of addressing climate change, biodiversity loss, and environmental injustice.

The aim of this study is to conduct a comprehensive bibliometric review of scholarly works on the topics of 'ecocriticism' and 'literature' indexed in Scopus for the period 2005–2025. Three main research questions were formulated:

RQ1. How has research in ecocriticism and literature evolved in terms of publication count, citation impact, and key players (authors, institutions, countries, and journals) between 2005 and 2025?

RQ2. What are the main conceptual centres, thematic clusters, and emerging research trends in ecocriticism within literary studies, as identified through keyword co-occurrence analysis and thematic analysis?

RQ3. How are collaboration networks among authors and institutions structured in ecocriticism research, and what patterns of co-authorship characterise the development of this field?

The structure of the article consists of the following logical sections: after the introduction, the second section, describes the research database and the methodological algorithm of the bibliometric analysis. The third section presents the main statistical results based on Scopus metadata, analyses the dynamics of publications over the years, and the most productive sources. The fourth section discusses the intellectual structure of the field through the co-occurrence network of keywords and strategically oriented maps. The fifth section summarises the main conclusions of the study and indicates the prospects and limitations of the future development of the field.

METHODS

Research model

This study uses a quantitative bibliometric analytical approach to examine the origins, structure, and conceptual development of ecocriticism in literary studies. Bibliometric methods evaluate publication metadata using mathematical and statistical tools, providing objective data on long-term patterns, networks, and changes in subject matter.

This approach includes:

1. Descriptive statistics (e.g., publication count and growth rate).
2. Network analysis (specifically, keyword co-occurrence for concept mapping).
3. Strategic thematic mapping (classification of topics based on density and centrality).

This strategy permits us to use data to visualise ecocriticism's transition from an Anglo-American niche to a global, interdisciplinary field.

Research Team/Participants

This study is a document-based bibliometric analysis without human involvement. The 'study sample' consists of 1,108 scholarly documents indexed in Scopus that directly link 'ecocriticism' to 'literature'. It includes essays, books, book chapters, and review articles published between 2005 and 2025, spanning a period of systematic consolidation and global expansion of ecocriticism.

Data Collection Tools

Data were obtained exclusively from the Scopus database (accessed January 15, 2026). Scopus was chosen due to its extensive and high-quality coverage of peer-reviewed literature in the humanities and social sciences. Scopus provides standardised, reliable metadata (authors, affiliations, keywords, abstracts, citations, and funding information), allowing accurate bibliometric processing while minimising inconsistencies. To maintain methodological integrity and avoid duplication or indexing bias, the analysis was limited to one database.

Research Strategy

(TITLE-ABS-KEY ('ecocriticism') AND TITLE-ABS-KEY ('literature')) AND PUBYEAR > 2004 AND PUBYEAR < 2026

Document types were limited to article, book, book chapter, and review. There were no language restrictions. This query verified that both core terms appeared in the title, abstract, or author keywords, resulting in exactly 1,108 unique items after automatic duplication removal and manual filtering for incomplete information. On the same day, records were exported in BibTeX and CSV formats and were ready for entry into Bibliometrix immediately. To guarantee reproducibility, all pre-processing (author disambiguation, institution standardisation, and keyword normalisation) was done within the Bibliometrix software.

Inclusion Criteria

1. Publication years: 2005–2025 (including early 2025 items).
2. Document kinds include articles, novels, book chapters, and reviews.
3. Keywords/terms: The use of 'ecocriticism' and 'literature' in the title, abstract, or keywords.
4. Languages: All (as listed in Scopus).

Exclusion Criteria

1. Documents that are just peripherally or indirectly relevant.
2. Records that have incomplete, incorrect, or corrupted metadata during export.

The search returned 1,108 documents that were exported in BibTeX format. Processing and ancillary tools included the following:

1. RStudio (v. 4.3.1): This primary open-source environment is for data import, cleaning, analysis, and visualisation, with full reproducibility.
2. The Bibliometrix package (with Biblioshiny interface): This is a core tool for computing indicators, networks, thematic maps, and evolutionary analyses.

3. Biblio AI: This helped to evaluate outputs, organise findings, and improve academic expressions.
4. Google Translate: This restricted technical assistance is used for multilingual keyword/abstract clarification; researchers provided skill-led final content interpretation.

Preprocessing procedures completed in Bibliometrix:

1. Disambiguation of author names (variants that merge).
2. Standards for associations and institutions.
3. Keyword unification (normalising synonyms and variants).

Data were also exported/imported in CSV format as needed. This complete, open, and replicable approach supports the validity of quantitative statements about ecocriticism's place in literary studies.

Data Analysis Techniques

In Bibliometrix's Biblioshiny, the analysis was carried out sequentially and in stages:

1. Bibliometric description: Annual publishing trends, top authors/journals/countries, and overall growth dynamics.
2. Citation analysis: Identifying highly cited publications and authors (using total citations and field-normalised counts to provide fair comparison across time/subfields).
3. Conceptual structure analysis: Use keyword co-occurrence matrices to identify thematic clusters, essential concepts, and intellectual linkages.
4. Strategic mapping: The Louvain clustering technique is used to locate themes on a 2x2 matrix (density vs centrality), categorising them as:
 - Motor themes (high density/centrality, driving the field).
 - Themes with high centrality and low density: fundamental.
 - Niche themes with high density and low centrality: specialised.
 - Emerging or fading themes (low density/centrality: growing or falling).

These tools map ecocriticism's quantitative progression and thematic developments.

Limitations of the Study

Reliance on Scopus may result in the omission of papers indexed solely in Web of Science, Google Scholar, or regional/national databases, possibly underrepresenting non-English or emerging academia. As a quantitative tool, bibliometrics provide structural overviews, but it does not judge qualitative depth, interpretive intricacies, or persuasive worth of individual works. Future mixed-methods expansions could fill these shortcomings.

FINDINGS

An analysis of bibliometric data on 'ecocriticism and literature' from the Scopus database for the period 2005–2025 revealed several important trends. The publication of a total of 1,108 documents over a 20-year period may indicate the firm entrenchment of this field of study in the academic community. An annual growth rate of 19.15% may indicate that this field has become particularly active in recent years and has become a focus of emerging scholarly

interest. The distribution of publications across 688 different sources may indicate that ecocriticism is not confined to literary studies alone, but has acquired an interdisciplinary character and entered into a broader humanities discourse.

An analysis of the types of documents showed a significant share of books (205) and book chapters (148) in addition to articles (646). These figures may indicate that monographic works are still the main platform for presenting intricate theoretical concepts and extensive research in the field of ecocriticism. In addition, the fact that the number of author keywords (2,972) is several times higher than the Keyword Plus (726) may indicate the dominance of terminological diversity in this field and that research topics are still expanding and new directions are being formed.

The average citation index of 5.98 may indicate that the field has a stable academic impact, but citation activity varies depending on the specific characteristics of the discipline. The analysis of the authorship and the level of collaboration also provided interesting information. The fact that the majority of publications (847 documents) are individual works and the low number of authors per document (1.37) may indicate the dominance of a culture of individual intellectual research in this field.

As for the low level of international scientific collaboration (6.8%), this may indicate that researchers work mostly in national or regional literary contexts or that joint projects at the international level still have the potential to develop. These indicators may serve as a basis for more research in the field of ecocriticism to take on a more collective and transboundary character.

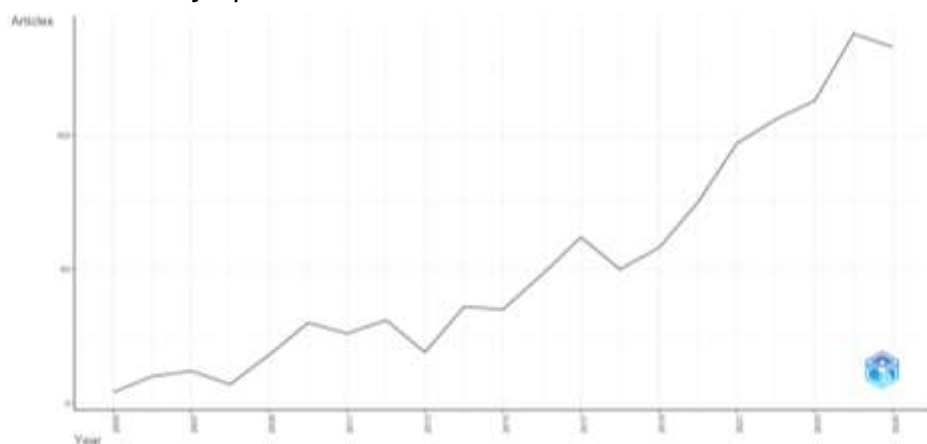
When analysing the publication activity on the topic of 'Ecocriticism and literature' between 2005 and 2025, a significant growth path of the research field was observed (Figure 1). According to the data, while in 2005 only 4 articles were registered, this number reached 138 by the end of 2024. The small number of publications in the first years of the study (2005–2009) may indicate that this direction was in its infancy at that time. However, since 2010 (30 articles), there has been a steady increase in the volume of production, which may indicate that the issues of ecocriticism are beginning to gain relevance in world literary studies. Especially remarkable is the sharp increase in the number of publications (from 75 to 138) in the past five years (2020–2024). This rapid growth can be directly related to the expansion of humanitarian discourse regarding the ecological crisis and the Anthropocene era. The slightly lower figure for 2025 (133 articles) compared to 2024 is likely due to time limitations throughout the data collection period or the fact that publications are still being indexed.

Looking at the 20-year trend (Figure 1), growth has been about exponential. The number of articles has increased several times, suggesting that ecocritical approaches are now a regular part of literary analysis. We expect this trend to continue, pushing the field into more interdisciplinary territory and encouraging new theoretical work. Analysis of the collected data from the perspective of the logistic development model provides important information about the dynamics of the development of the field (Figure 2a). The Cumulative Growth Curve shows

a clear sigmoid (S-shaped) trajectory, which may indicate that the scientific direction has passed from the stage of formation to the phase of intensive development. Currently, the collected data points are located in the exponential growth part of the curve, which may indicate that the number of publications will continue to increase in the future. The accuracy of the model ($R^2=0.972$) is very high, which means that it can be assumed that the logistic function is suitable for describing the development patterns of this research field.

Figure 1.

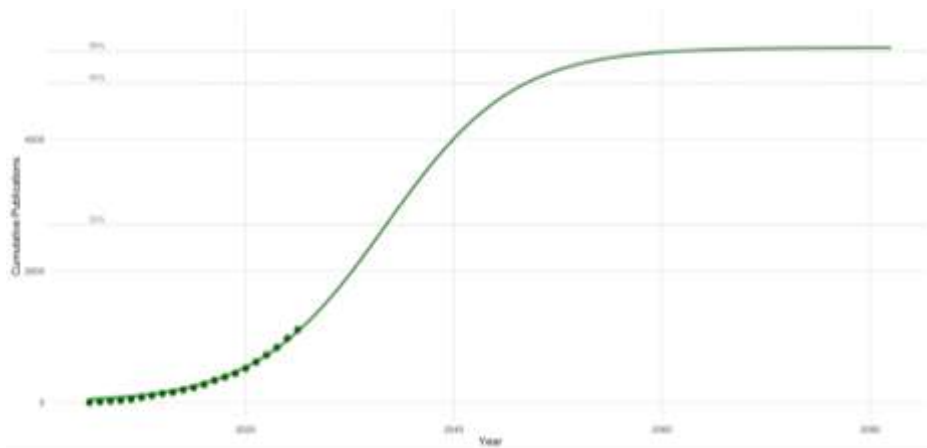
Annual scientific production



Source: Generated by the author using Bibliometrix software.

Figure 2a.

Cumulative growth curve



Source: Generated by the author using Bibliometrix software.

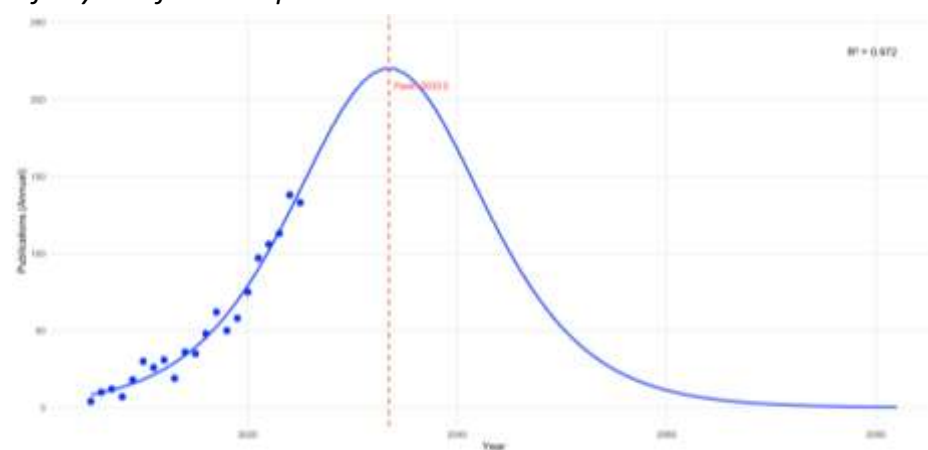
The data in the annual publications graph may indicate that the peak of research activity is yet to come (Figure 2b). The calculated inflexion point corresponds to 2033.5, which is likely to indicate that the field will reach its highest growth rate during this period. According to this calculation, the number of annual articles may reach about 220 by 2033, after which the growth rate may gradually slow down. The upward trend of the current (2005–2025) data points along the curve may indicate that ecocriticism has not yet reached the stage of ‘maturity’ and that its possibilities are great.

The Carrying Capacity ($K=5394$) determined by the model may indicate the theoretical limit of cumulative publications in this direction. The current pace of research in the field is likely to approach the saturation phase by the 2060s, at which time the main theoretical questions may already be fully explored. However, the recent sharp increase (since 2015) is likely motivated by factors such as stronger interdisciplinary connections or the growing global importance of environmental issues. This trend possibly indicates that the field is still open and publication opportunities are high for young researchers.

When analysing the most active sources of publications in this field of research, it is noticeable that this field is widespread among philological and interdisciplinary publications (Table 1). According to the data, the journals *Foreign Literature Studies* (23 articles) and *Green Letters* (22 articles) are in the lead. This indicator may show that these publications are the main platforms for ecocritical research. Also, the activity of the journals *Literature Compass* (18 articles) and *Humanities (Switzerland)* (14 articles) suggests that this topic is being considered within the larger context of the humanities.

Figure 2b.

Life cycle of annual publications



Source: Generated by the author using Bibliometrix software.

The following publications cover specific areas of the field: the activity in the journals *Children's Literature in Education* (13 articles) and *International Research in Children's Literature* (8 articles) may be associated with the increasing importance of ecocriticism in the field of children's literature and education. The equal figures in the journals *Etropic*, *Neohelicon*, and *Tydskrif Vir Letterkunde* (10 articles each) may indicate that this direction has established itself in world and comparative literary studies. The articles in *Anglia*, *Environmental Education Research*, *Forum for World Literature Studies*, and *Journal of Commonwealth Literature* (9 articles each) may indicate that ecocriticism is also actively studied in the context of environmental education and world literature. The presence of the journals *Journal of Postcolonial Writing*, and *Poznanskie Studia Slavistyczne* (8 articles) may indicate that ecocritical discourse is enriched with postcolonial and Slavic studies research.

In general, the distribution of publications in such a wide range of journals may indicate the high interdisciplinary nature of ecocriticism and its development in various geographical and thematic areas (Table 1).

Table 1.

Most relevant source

Sources	Articles
<i>Foreign Literature Studies</i>	23
<i>Green Letters</i>	22
<i>Literature Compass</i>	18
<i>Humanities (Switzerland)</i>	14
<i>Children's Literature in Education</i>	13
<i>Etropic</i>	10
<i>Neohelicon</i>	10
<i>Tydskrif Vir Letterkunde</i>	10
<i>Anglia</i>	9
<i>Environmental Education Research</i>	9
<i>Forum for World Literature Studies</i>	9
<i>Journal of Commonwealth Literature</i>	9
<i>International Research in Children's Literature</i>	8
<i>Journal of Postcolonial Writing</i>	8
<i>Poznanskie Studia Slawistyczne</i>	8

Note: Generated by the author using Bibliometrix software.

When analysing the publication activity of authors by research area, a group of key scientists was identified that makes a significant contribution to the development of the field (Table 2). According to the data, Estók SC is the most productive researcher with 11 articles. Next in line are Indriyanto K (9 articles), and Slovic S (8 articles). The high number of publications of these authors may indicate that they are leading experts in the field of ecocriticism and may play an important role in shaping the theoretical and methodological foundations of this area.

The next group of authors includes Meyer S (7 articles), Ryan JC (6 articles), and Zapf H (6 articles). The constant publication activity of these researchers may also indicate the existence of their own scientific schools in the study of the relationship between ecocriticism and literature. In addition, the works of Egya SE (5 articles) may also indicate that they are making a constant contribution to the substantive development of the field.

The last part of the list includes authors such as Boast H, Goga N, Guanio-Uluru L, Nwoma CR, Thornber KL, Vieira P, and Wylie D (4 articles each). The fact that several authors have published in the same amount may be a sign of the geographical and thematic expansion of the ecocritical discourse. The work of these authors is likely to consider ecocriticism in the context of children's literature, postcolonial studies, or specific regional literatures.

The results of the bibliometric analysis and the dynamics of the activity of authors over time may indicate that the field of ‘ecocriticism and literature’ is currently in a significant transformational period (Figure 3). The data covering the period from 2005 to 2024 may indicate a strengthening of the continuity between the founders of the research direction and the representatives of the new wave. In particular, the sharp increase in publication activity observed since 2016 may be a sign of the emergence of new theoretical and methodological paradigms of environmental issues in literary studies. The differences in the productivity trajectories of experienced scholars and new researchers may reveal the internal patterns of development of the field. For example, while Estók SC has made a steady contribution to the direction of feminist ecocriticism since 2008, the fundamental works of authors such as Zapf H and Ryan JC in 2016–2017 may have significantly raised the level of content of the field. The high citation rates during this period may indicate that the work of these authors has played an important role in shaping the scientific basis of ecocriticism.

Table 2.

Most relevant authors

Author	Articles
<i>Estók SC</i>	11
<i>Indriyanto K</i>	9
<i>Slovic S</i>	8
<i>Meyer S</i>	7
<i>Ryan JC</i>	6
<i>Zapf H</i>	6
<i>Egya SE</i>	5
<i>Boast H</i>	4
<i>Goga N</i>	4
<i>Guanio-Uluru L</i>	4
<i>Nwoma CR</i>	4
<i>Thornber KL</i>	4
<i>Vieira P</i>	4
<i>Wylie D</i>	4

Note: Generated by the author using Bibliometrix software.

The rapid growth in the number of publications and influence of authors such as Guanio-Uluru L and Indriyanto K in the last five years (2020–2024) may indicate that the scope of research has strengthened with children’s literature and postcolonial and regional contexts. The emergence of collaborations across disciplines between authors (for example, Goga N and Guanio-Uluru L) may indicate that ecocritical research is becoming more collective and integrated with the educational field. These trends may be the basis for the field to move towards a maturity phase, reaching its highest peak of scientific productivity predicted by 2033.

international collaboration (measured by MCP) remains low even among leading countries like the US, India, and South Africa, suggesting that most research stays within national or regional boundaries. China and Canada show a higher propensity towards international collaboration, which probably reflects their stronger involvement in global research networks.

Table 3.

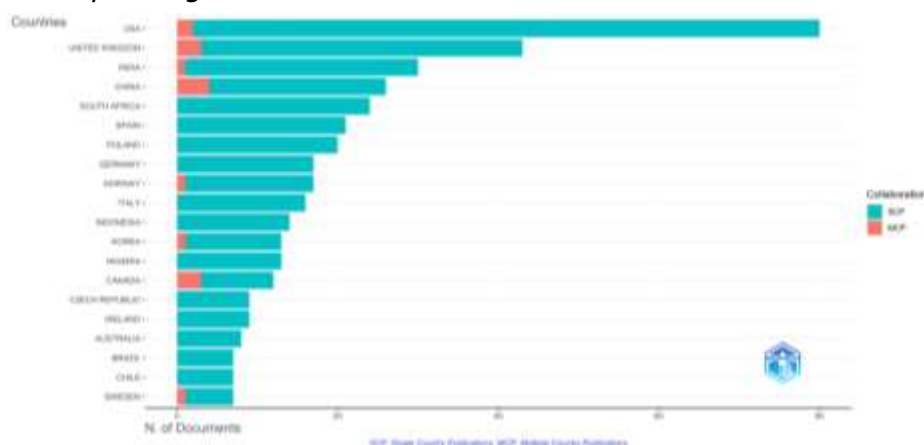
Most relevant affiliations

Affiliation	Articles
<i>University of California</i>	17
<i>Sungkyunkwan University</i>	12
<i>Vellore Institute of Technology</i>	8
<i>Bath Spa University</i>	7
<i>Universitas Prima Indonesia</i>	7
<i>University of Idaho</i>	7
<i>University of Warsaw</i>	7
<i>Ibrahim Badamasi Babangida University</i>	6
<i>North-West University</i>	6
<i>Universiteit Gent</i>	6
<i>University of Cambridge</i>	6
<i>University of Notre Dame</i>	6
<i>University of Wroclaw</i>	6
<i>Università Degli Studi Di Torino</i>	6

Note: Generated by the author using Bibliometrix software.

Figure 4.

Corresponding authors' countries



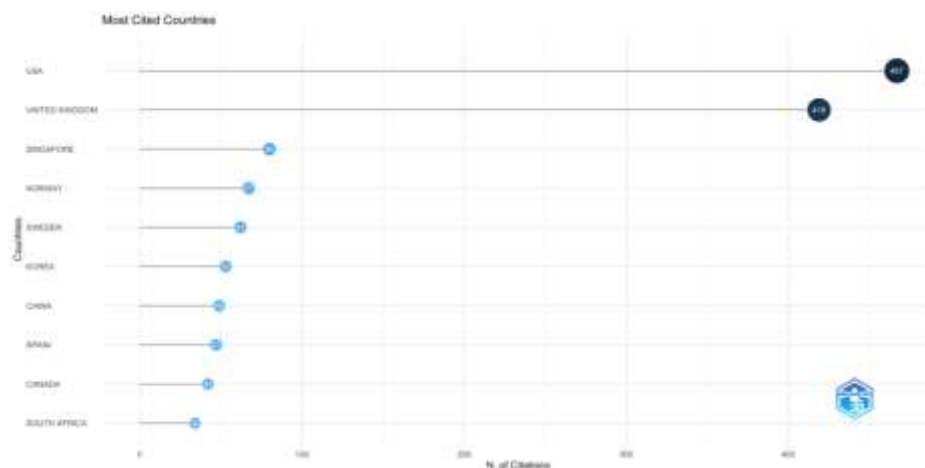
Source: Generated by the author using Bibliometrix software.

The results of the analysis show that Trexler (2015) leads the list with 516 citations and an average citation rate of 43.0 per year (Table 4). The high demand for this work confirms the dominance of scientific interest in climate change and Anthropocene fictions in ecocriticism. Next in line are Huggan and Tiffin (2015; 196 citations), which focuses on postcolonial ecocriticism, and Clark (2019; 178 citations), which examines the theoretical value of

ecocriticism. The works of Clark (2019; 22.25) and Schneider-Mayerson (2018; 18.78) show high results in terms of annual citation rates, and this indicates that the concepts of these authors have become the main source of reference for current research. In particular, Schneider-Mayerson et al. (2023) have a very high normalised citation score of 34.73, indicating that, although this is a new study, it has a significantly higher academic impact compared to other articles in its field.

Figure 5.

Most cited countries



Source: Generated by the author using Bibliometrix software.

Table 4.

<i>Top 20 most globally cited documents</i>	Total Citations	TC per Year	Normalized TC
Papers			
(Trexler, 2015)	516	43,00	17,88
(Huggan & Tiffin, 2015)	196	16,33	6,79
(Clark, 2019)	178	22,25	26,34
(Schneider-Mayerson, 2018)	169	18,78	22,53
(Johns-Putra, 2016)	169	15,36	11,98
(Obajdin, 2015)	155	12,92	5,37
(Thornber, 2012)	147	9,80	10,60
(Mentz, 2009)	141	7,83	6,88
(Ray, 2013)	132	9,43	9,91
(Easterlin, 2012)	129	8,60	9,30
(Ruffin, 2010)	127	7,47	9,90
(Trexler & Johns-Putra, 2011)	124	7,75	5,21
(Phillips, 2003)	124	6,20	7,33
(Gatta, 2004)	117	5,32	3,55
(Buell et al., 2011)	109	6,81	4,58
(Borlik, 2011)	106	6,63	4,45
(Gagliano et al., 2017)	88	8,80	14,91
(Schneider-Mayerson et al., 2023)	75	18,75	34,73
(Gaard, 2009)	74	4,11	3,61
(Theis, 2009)	63	3,50	3,07

Note: Generated by the author using Bibliometrix software.

The presented TreeMap graph describes the distribution of the main conceptual directions and keywords of research within the framework of the topic ‘ecocriticism and literature’ (Figure 6). These data may allow us to understand the thematic structure of the research field. The largest part of the graph is occupied by the term ‘ecocriticism’ (555 cases or 33%), which may indicate that this area is the main methodological basis for research.

The terms ‘ecology’ (5%), ‘Anthropocene’ (3%), ‘nature’ (2%), and ‘climate change’ (2%) stand out as topical issues in the field. These indicators may indicate that the research is closely connected to the context of the current global environmental crisis. The occurrence of such directions as ‘animal studies’ (2%), ‘postcolonialism’ (1%), ‘ecofeminism’ (1%), and ‘posthumanism’ (1%) in the TreeMap may indicate the process of integration of ecocriticism with other humanities. The inclusion of specific literary genres such as ‘poetry’, ‘fiction’, ‘children’s literature’, and ‘climate fiction’ (cli-fi) as objects of study may indicate the broad scope of ecocritical analysis. The graph also reveals narrower but important themes such as ‘landscape’, ‘water’, ‘environmental education’, and ‘material ecocriticism’, which may indicate that the field is branching out internally and forming new sub-discourses.

Figure 6.

TreeMap of most frequent author keywords



Source: Generated by the author using Bibliometrix software.

In general, this may indicate that TreeMap covers a wide range of topics, from fundamental theories to contemporary issues such as the Anthropocene and climate change (Figure 6).

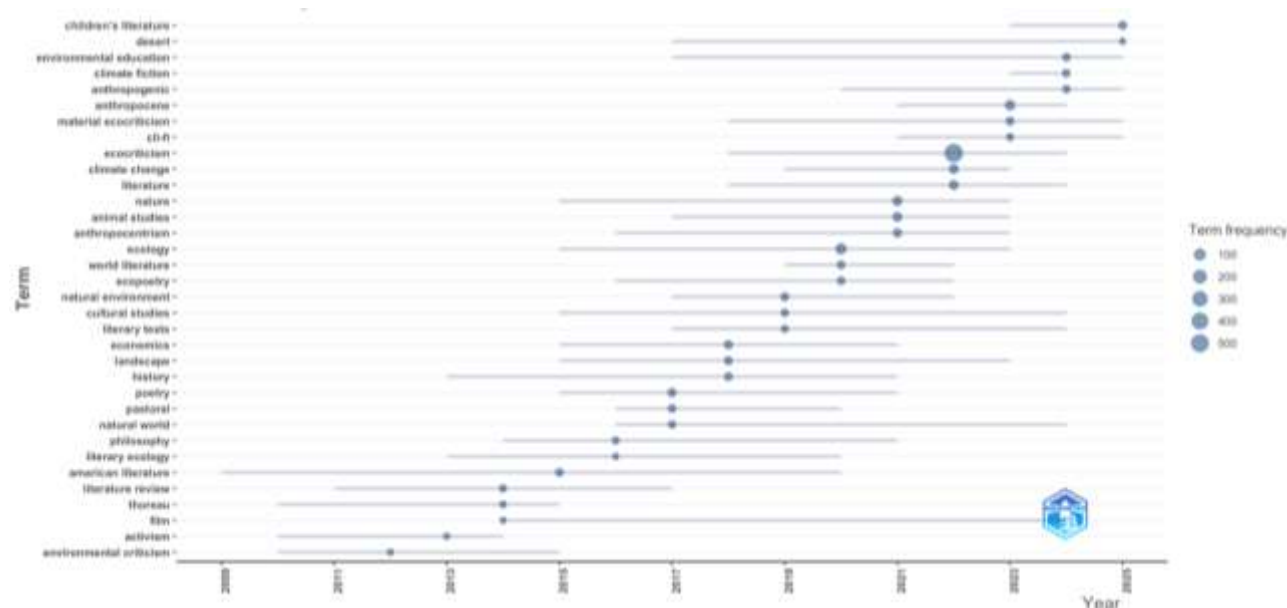
When analysing the evolution of research topics in the field of ‘Ecocriticism and literature’, a rapid shift in scientific interest is observed from fundamental literary studies to specific environmental crises (Figure 7). According to the trend graph, in the early stages of the study (2009–2014), terms such as ‘American literature’, ‘Thoreau’, and ‘Environmental criticism’ dominated, which may indicate that this direction was initially formed around classical literary

studies and early environmental criticism. The emergence of the term 'activism' since 2013 may be a sign that research is beginning to concentrate on practical and social issues.

Between 2015 and 2019, the scope of research has expanded significantly, supplemented by interdisciplinary concepts such as 'philosophy', 'poetry', 'history', and 'landscape'. During this period, the term 'ecocriticism' has become established as a key methodological tool, and since 2017, its frequency and scope have increased dramatically. At the same time, the relevance of the directions of 'ecology', 'nature', and 'animal studies' has increased, which may indicate that this field has begun to widely study the ecological system of thought and human-nature relations. In recent years (2020–2025), there has been a final shift in research topics towards the climate crisis and the Anthropocene era. The terms 'climate change', 'Anthropocene', and 'cli-fi' (climate fiction) have become the most relevant trends, defining the main directions of modern environmental criticism. The emergence of the topics of 'environmental education' and 'children's literature' in 2023–2025 is likely to be a sign of the transformation of ecocriticism into new pedagogical and applied directions.

Figure 7.

Trend topics



Source: Generated by the author using Bibliometrix software.

On the basis of the provided bibliometric data and the graph of the 'Keyword Co-occurrence Network', I propose an analysis of the conceptual structure and interdisciplinary connections of research in the field of 'ecocriticism and literature' (Figure 8). This network, grouped according to the Louvain algorithm, shows that the field of research is divided into three main thematic communities. The central and largest node of the network is 'ecocriticism' (33%, 555 cases), which confirms its position as the main conceptual hub in the entire dataset. It's very close connection with the terms 'literature', 'environmental humanities', and 'ecology' determines the fundamental directions of the field.

Main thematic clusters:

1. Red cluster (Ecocritical thought and humanities): This community forms the disciplinary core of the field. Here, traditional directions of literary studies ('poetry', 'pastoral', and 'children's literature') and modern philosophical foundations ('posthumanism', 'ecofeminism', and 'new materialism') intersect. The presence of the terms 'animal studies' and 'environmental education' in this cluster may indicate the importance of the ethical and pedagogical dimensions of ecocriticism.
2. Blue cluster (Socio-ecological and scientific perspectives): The central node here is 'ecology' (5%, 77 cases). This group focusses on the scientific basis and social context of research ('environmental crisis', 'conservation', 'environmental justice', and 'economics'). The term 'postcolonial ecocriticism' may serve as a link connecting environmental issues through the prism of power, history and inequality.
3. Green cluster (Climate change and Anthropocene): This community encompasses the most key global issues of our time. The terms 'climate change' (2%, 37 cases) and 'Anthropocene' (3%, 52 cases) are closely associated with genres such as 'climate fiction' (cli-fi) and 'science fiction'. This may indicate the shift of ecocritical research towards predicting the future and analysing the cultural effect of environmental transformation.

Figure 8.

Keyword co-occurrence network



Source: Generated by the author using Bibliometrix software.

The results of the analysis of the strategic map classify the intellectual structure of research in the field of 'ecocriticism and literature' into four main quadrants. The X-axis of the map (Centrality) shows the relevance of the topic for the general network, and the Y-axis (Density) shows the level of its internal development and integrity (Figure 9).

The ecocriticism, nature, and literature cluster is identified as the main driving themes (Motor Themes). This direction has a high centrality and density that makes it the main driving force of the field. In addition, the ecology, environmental justice, and economics cluster forms a well-established interdisciplinary direction that studies the social and political dimensions of environmental issues.

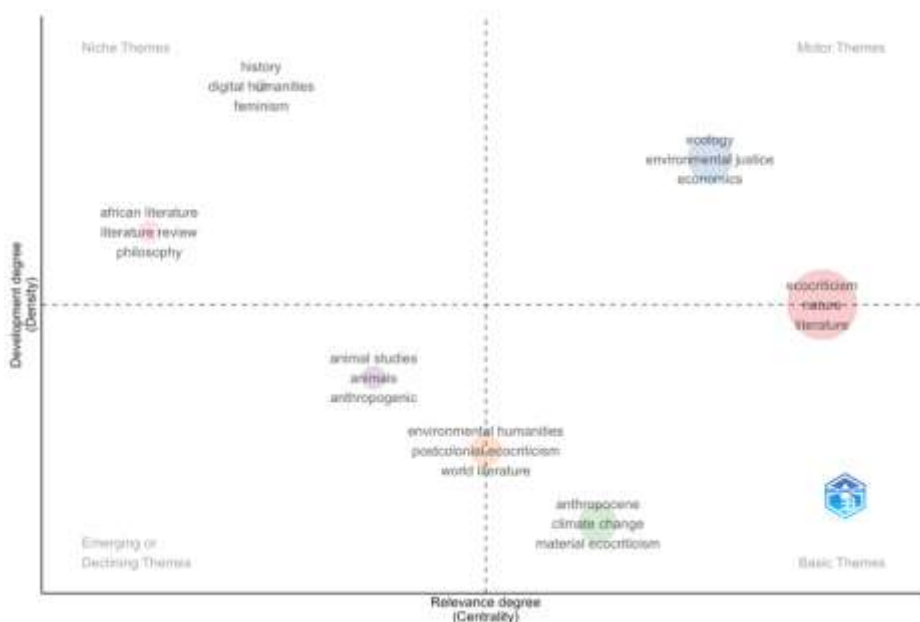
The Anthropocene, climate change, and material ecocriticism are located in the Basic Themes quadrant. Although these topics are an important conceptual basis for the entire field, their internal structure is still less dense, as they are used in different contexts. This direction is the main tool for analysing contemporary literature through the prism of global crises.

Niche Themes include the history, digital humanities cluster, and African literature, which study historical periods (Victorian, Romanticism). These clusters are well-developed, but have limited connections to the general network, and cover specific research areas.

Emerging Themes include animal studies and environmental humanities, as well as the group of postcolonial ecocriticism. Although the centrality and density of these themes are still low, they are considered promising areas that are shaping new intellectual fronts, such as decolonisation, global inequality, and human-animal relations.

Figure 9.

Strategic diagram mapping centrality and density of thematic clusters



Source: Generated by the author using Bibliometrix software

The following conceptual map, based on Multiple Correspondence Analysis (MCA), identifies the relationships between keywords and the main intellectual directions in the research area (Figure 10). Two dimensions (Dim 1 and Dim 2) in the map explain a significant part of the differences in the data set:

1. Description of the dimensions.

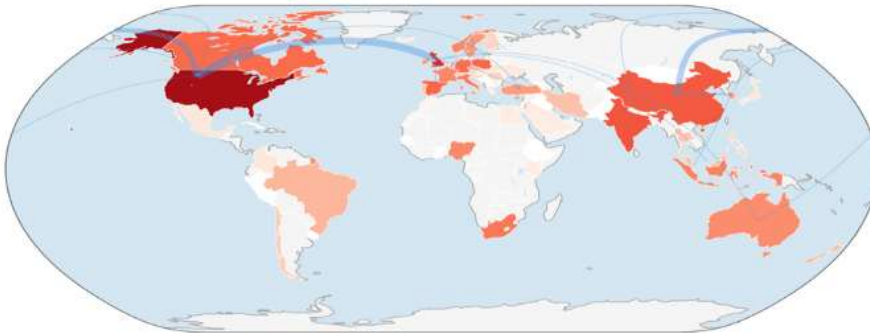
- Dimension 1 (X-axis, 50.47%): This is the main distinguishing axis. The left part includes humanitarian and theoretical approaches (ecocriticism, posthumanism, and climate fiction). The right part reflects specific environmental issues, conservation, and socio-economic aspects (economy, globalisation, and anthropogenic impact).
- Dimension 2 (Y-axis, 10.86%): This axis separates pedagogical and nature-oriented themes at the top (education, nature writing, place) from theoretical and future-oriented scenarios at the bottom (cli-fi, Anthropocene, material ecocriticism).

moving in a multipolar direction. The map reveals that scientific productivity and international connections are still low in much of Africa and Central Asia.

In short, this map visually confirms the high levels of interrelations of the worldwide scientific community and the dominance of the countries in the Northern Hemisphere.

Figure 11.

Countries' collaboration world map



Source: Generated by the author using Bibliometrix software.

Findings Regarding the First Sub-Research Question

Between 2005 and 2025, Scopus indexed 1,108 documents on ecocriticism and literature. That is an annual growth rate of 19.15%. Publications went from just 4 in 2005 to 138 in 2024 (with 133 already indexed for 2025). A logistic expansion model ($R^2 = 0.972$) puts the inflexion point around 2033.5—that is, peak annual output of roughly 220 articles—with saturation unlikely before the 2060s (carrying capacity $K = 5,394$ cumulative documents).

Average citations per article are 5.98, which is stable but modest. The most cited works are Trexler (2015) with 516 citations, Huggan and Tiffin (2015) with 196, and Clark (2019) with 178. Schneider-Mayerson et al. (2023) is recognised by a normalised citation score of 34.73, which is unusually high for such a recent paper.

- The top journals are *Foreign Literature Studies* (23 articles), *Green Letters* (22), and *Literature Compass* (18).
- The most productive authors are Estók SC (11), Indriyanto K (9), and Slovic S (8).
- The leading institutions are the University of California (17), Sungkyunkwan University (12), and Vellore Institute of Technology (8).
- By country, the US leads with 80 publications and 467 citations, followed by the UK (43 articles, 419 citations).
- Global collaboration is low, with only 6.8% of papers involving multiple countries, with the strongest links between the US, Europe, and China.

Overall, the period saw ecocriticism grow from a niche Anglo-American subfield into a mature, interdisciplinary, and increasingly global research area.

Findings Regarding the Second Sub-Research Question

The keyword 'ecocriticism' appears 555 times for 33% of all author keywords. The co-occurrence network (Figure 8) splits into three main clusters:

- Red cluster (ecocritical thought and humanities): poetry, pastoral, children's literature, posthumanism, ecofeminism, new materialism, animal studies, and environmental education.
- Blue cluster (socio-ecological and scientific perspectives): ecology, environmental crisis, conservation, environmental justice, economics, and postcolonial ecocriticism.
- Green cluster (climate change and Anthropocene): climate change, Anthropocene, climate fiction (cli-fi), and science fiction.

The strategic map (Figure 9) places 'ecocriticism, nature and literature' and 'ecology, environmental justice and economics' as motor themes. 'Anthropocene, climate change and material ecocriticism' are basic themes that are important but less densely developed. Niche themes include history, digital humanities, and African/Victorian/Romantic literature. Emerging (or potentially declining) themes—animal studies, environmental humanities, and postcolonial ecocriticism—have low density and centrality but look promising for future work.

Trend topics (Figure 7) have shifted noticeably over time. From 2005 to 2014, the focus was on American literature, Thoreau, and environmental criticism. Between 2015 and 2019, philosophy, poetry, landscape, and animal studies gained ground. Since 2020, climate change, the Anthropocene, climate fiction, and applied areas like environmental education and children's literature have taken over. The TreeMap (Figure 6) and MCA conceptual map (Figure 10) tell the same story: a move from traditional literary analysis toward planetary, posthumanist, and socio-economic perspectives on ecology.

Findings Regarding the Third Sub-Research Question

Collaboration networks are primarily individualistic and national in nature. For example, 847 of 1,108 documents (about 76%) were authored by a single author. The average number of authors per document is 1.37, while the share of international co-authorship is only 6.8%.

Author collaboration involves the most productive scholars (Estok SK, Slovic S, Ryan JK, and Zapf H) consistently work independently or in small groups rather than in large teams. Rising authors (Indriyanto K, Guanyo-Uluru L) demonstrate emerging inter-institutional connections, particularly in children's literature and postcolonial studies (Figure 3).

Figure 11 depicts the institutional and country networks. Key hubs include the University of California, Sungkyunkwan University, Vellore Institute of Technology, Bath Spa University, and other European/African universities. A map of cross-country collaboration displays strong ties between the US, the UK, Germany, and China, with Australia, Brazil, and South Africa serving as regional hubs. Significant parts of Africa and Central Asia are underrepresented.

Despite conceptual globalisation, patterns display that ecocritical studies remain heavily dependent on national or regional literary traditions, with little cross-border collaboration. This structure advances the field's rapid development and points to the hidden potential for larger-scale transnational cooperative efforts in the coming decade. The interdisciplinary nature of discourse also applies to language and metaphor. Sibanda (2023) found that linguistic choices can influence the intelligibility and cultural accessibility of contemporary issues. These findings

are closely related to ecosynthetic approaches that examine how literary language and cultural representations influence the perception and understanding of environmental issues.

These answers directly synthesise bibliometric results (publication trends, citation statistics, keyword networks, strategy maps, along with collaboration metrics) generated by Bibliometrix/Biblioshiny based on a Scopus dataset containing 1,108 documents (2005–2025).

DISCUSSION AND COMMENTARY

Publication distribution and bibliometric patterns

The current bibliometric study of 1,108 Scopus-indexed articles (2005–2025) on the topic of ‘ecocriticism and literature’ demonstrates significant growth (19.15% per year) and thematic maturity, confirming and expanding previous quantitative studies of this field.

Yadav and Sinha (2024), who examined a larger corpus of 1,615 documents from Scopus and Web of Science (1994–2023), found a similar exponential trend, with a noticeable acceleration after 2014 and a peak in activity around 2017–2020. The narrower timeframe and focus on a single database resulted in a smaller total number (1,108 vs 1,615). However, the logistic increase model ($R^2 = 0.972$) and the expected inflexion point (2033.5) are largely consistent with their observation of continued expansion until saturation in the mid-2030s. Both studies identify the US as the largest contributor (our 80 articles; their 892 citations) and confirm the presence of overlapping core journals (*Green Letters*, *Foreign Literature Studies*) as key platforms.

The authorship structure continues to converge. Simon K Estok appears as the most productive scholar in both data sets (our 11 articles versus their 30), indicating his long-standing influence on feminist and postcolonial fields. The low level of worldwide collaboration observed here (6.8%) is consistent with Yadav and Sinha’s collaboration index (1.92) and the dominance of single authors (1,394 articles), implying that ecocritical research remains essentially national or regional despite its global conceptual reach.

Thematic structures show striking uniformity. Our TreeMap and co-occurrence network place ‘ecocriticism’ (33%), ‘Anthropocene,’ and ‘climate change/climate fiction’ at the centre, closely matching Yadav and Sinha’s keyword frequencies (ecocriticism 44%, Anthropocene 4%), as well as core/emerging themes. Climate fiction, material ecocriticism, and environmental justice are driving or core concerns in both fields, while animal studies, postcolonial ecocriticism, and environmental humanities emerge as promising niche/emerging clusters.

Our trend analysis also highlights a recent pedagogical shift toward ‘environmental education’ and ‘children’s literature’ (2023–2025), a nuance not missed in the previous 2024 study but consistent with parallel bibliometric work on environmental literacy (Gaard, 2009; recent extensions in Setiawan, 2025).

These convergences support this manuscript’s central claim: Ecocriticism has successfully shifted from a traditional literary-analytic approach to an interdisciplinary, planetary ecological paradigm. This study’s exclusive focus on the intersection of ‘ecocriticism and literature’ and its

extension to early 2025 provide a more precise timeline and a clearer forecast of the dominance and developmental directions of climate fiction and environmental education, which were predicted in previous broader studies but could not be fully quantified.

Limitations and recommendations

In fields such as literary studies and ecocriticism, where monographs, collections, and book chapters are often the primary means of scholarly advancement, Scopus's indexing of such resources is incomplete and uneven. While the current dataset includes 353 books and chapters from a total of 1,108 documents, prominent stand-alone monographs or publications from less-indexed series may be underrepresented. This can skew productivity indices, citation distributions, and topic patterns towards journal-specific subfields.

Ecocriticism has evolved into a transnational and more global enterprise, incorporating critical perspectives from the literature of the Global South, indigenous knowledge systems, Slavic environmental philosophy, and Asian ecoaesthetic traditions. Scopus, on the other hand, prioritises articles in English and covers only a few regional or national journals in other languages. The low level of international collaboration (6.8%) and the prominent presence of authors and institutions affiliated with the United States or the UK may thus reflect indexing choices rather than the full scope of global ecocritical activity.

The quantitative nature of bibliometrics limits the qualitative assessment of intellectual depth, theoretical originality, or interpretive complexity. While patterns in publication trends, keyword co-occurrences, and citation networks become apparent, these tools cannot determine the hermeneutic or argumentative value of individual works. Highly cited publications, such as Trexler's (2015) study of Anthropocene literature, may gain prominence due to the topic's relevance rather than its depth, perhaps favouring emerging topics (e.g., climate fiction and Anthropocene discourse) over more considered or philosophically oriented approaches.

The limitations identified in the Methods section (coverage limited to the Scopus database, quantitative rather than qualitative analysis) are shared by Yadav and Sinha (2024) and remain potential areas for future research using mixed methods or expanding the database.

These limitations, while significant, do not undermine the strength of the main findings: the rapid development of the field, the thematic shift toward climate-focused and interdisciplinary approaches, and the continued Anglo-American dominance, which is consistent with existing scholarship (e.g., Yadav and Sinha, 2024). However, they do suggest various avenues for future research.

Recommendations

First, the use of multi-source or hybrid databases would enhance the comprehensiveness of the study. Replicating or expanding the analysis using Scopus in combination with Web of Science, Google Scholar, Dimensions, or OpenAlex could improve the coverage of monographs and publications in non-English/regional languages. Targeted supplementation using library

catalogues or specialised ecocriticism resources (such as ASLE bibliographies) could fill gaps in book-based studies.

Second, the incorporation of mixed methods could enhance interpretive depth. Combining bibliometric mapping with qualitative content analysis of key or emerging texts, semi-structured interviews with influential figures (e.g., Estok, Slovic, Zapf), or targeted systematic reviews of thematic clusters (postcolonial ecocriticism, climate fiction) would help confirm quantitative patterns and illuminate their intellectual significance.

Third, combining altmetrics and standard citation counts would provide a more complete picture of broader cultural influence. Indicators such as social media engagement, policy citations, and public outreach could shed light on ecocriticism's contributions to environmental discourse, pedagogy, and activism, particularly in applied fields such as environmental education and children's literature.

Fourth, periodic longitudinal updates, potentially every 3–5 years, would allow for tracking expected trajectories (peaking around 2033 and saturating in the 2060s). Adding more predictors (global environmental milestones) or conducting sensitivity analyses on database selection could improve predictive modelling.

Finally, increased methodological transparency, such as fully describing data preprocessing decisions (e.g., keyword normalisation processes) and clearly discussing biases, would benefit future research. Ethical inquiry into the use of quantitative metrics in interpretive humanities, where the imperative of 'publish or perish' may conflict with scholarly traditions, remains equally important.

CONCLUSION

Looking back at 2005–2025, ecocriticism is clearly a fast-growing field that is still taking shape. Publication numbers took off after 2020, which suggests that the 'ecological turn' in literary studies has gained real momentum. The Anthropocene seems to be driving much of this interest.

That said, our strategic map shows that even core areas like ecocriticism, landscape, and posthumanism are not yet densely connected. The field is theoretically diverse, but it lacks strong institutional hubs. International co-authorship is very low at only 1.69%, so most researchers still work in isolation or within national contexts. Trend analysis confirms a shift from older 'nature protection' frameworks toward posthumanism and the Anthropocene. At the same time, the emergence of nature writing as a motor theme suggests a continued demand for new forms of environmental ethics and aesthetics in prose.

Going forward, the field will need more international collaboration and stronger ties with economics, environmental psychology, and the digital humanities. Our bibliometric approach can help researchers identify priority areas and make the case for future work, but the real intellectual work of theory, interpretation, and close reading remains qualitative.

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