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Research Trends in Islamic Ecotheology and Environmental Education: A Bibliometric Analysis

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Abstract

Environmental crises, including climate change, deforestation, ecosystem degradation, and biodiversity loss, have become pressing global challenges that require multidisciplinary approaches integrating ecological awareness with religious and educational perspectives. Among these approaches, Islamic ecotheology has gained increasing scholarly attention by emphasizing human moral and spiritual responsibility toward environmental sustainability. Despite this growing interest, few studies have systematically mapped the intellectual structure, thematic evolution, and emerging research directions of Islamic ecotheology in relation to environmental education. This study aims to map the development of research on Islamic ecotheology and environmental education through a bibliometric analysis of publication trends, country contributions, thematic structures, keyword networks, and emerging research topics. Data were collected from Google Scholar using the Publish or Perish application between January and March 2026. From an initial dataset of 1,120 publications, 556 articles published between 2016 and 2026 were selected based on their relevance to Islamic ecotheology, environmental education, faith-based environmental movements, and tree-planting initiatives. The data were analyzed using VOSviewer through network, overlay, and density visualizations. The findings reveal a substantial increase in publication output over the study period, reaching its peak in 2025. Indonesia emerged as the leading contributor, accounting for 392 publications (70.50%) based on author affiliations. Network visualization identified several interconnected research clusters centered on climate change, environment, education, ecotheology, and religion. Overlay visualization demonstrated a thematic shift from earlier discussions on climate adaptation and mitigation toward more recent topics, including Islamic ecotheology, environmental education, and tree-based conservation initiatives. Density visualization showed that climate change and ecotheology remain dominant research themes, whereas Islamic ecotheology, ecosystem services, and urban green infrastructure represent promising yet underexplored research areas. This study provides the first comprehensive bibliometric mapping of the intersection between Islamic ecotheology and environmental education, offering a clearer understanding of the field's intellectual landscape while identifying emerging themes and future research opportunities that support the integration of Islamic ecological values into sustainability education and environmental practice.

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INTRODUCTION

One of humanity's major challenges is the global environmental crisis (Ansori & Yusuf, 2023). Various problems, such as climate change (Ansori & Yusuf, 2023), deforestation (Bera et al., 2022), ecosystem degradation (Ali et al., 2024), and biodiversity loss (Jaureguiberry et al., 2022) it illustrates that the relationship between humans and nature is out of balance. Based on surveys conducted by international organizations, environmental degradation is influenced not only by economic and technological factors but also by humanity's perspectives on nature and on the ethics of using natural resources (Kuiper, 2023). Thus, the importance of a multidisciplinary approach that encompasses culture, ethics, and spirituality is emphasized in addressing the ecological crisis (Muhsan & Haris, 2022). One approach that integrates religious values with ecological awareness is ecotheology. Ecotheology refers to a theological perspective that examines the relationship between humans, God, and nature, while emphasizing moral and spiritual responsibility for environmental sustainability (Rani et al., 2025). This approach views humans as stewards who are responsible for caring for the environment and preserving ecological balance. Therefore, ecotheology provides a conceptual framework that encourages religious communities to participate in environmental conservation efforts (Hossain, 2025).

As attention to environmental issues increases, ecotheology has been increasingly integrated into environmental education through curriculum development, religious learning activities, and community-based ecological practices (Rohman et al., 2024). For example, show that eco-theological values can be incorporated into Islamic Religious and Character Education to strengthen students' environmental awareness. Education plays a strategic role in building ecological awareness and shaping responsible behavior toward the environment. The integration of religious values into environmental education is believed to strengthen the ethical and moral dimensions of learning, thereby fostering not only cognitive understanding of the environment but also concrete actions to sustain ecosystems (Setianingrum et al., 2024). One tangible way to implement these values in environmental education is through community-based ecological movements (Ruiz-Mallén & Corbera, 2013), such as tree-planting programs that are integrated into experiential learning activities. In this context, tree planting not only supports ecosystem restoration but also enables students and communities to develop ecological awareness, moral responsibility, and practical commitment to environmental conservation through direct learning experiences. (Duguma et al., 2020).

As far as the author has traced, research on ecotheology, religion and theology, and environmental education has been widely discussed. Although several studies have employed literature mapping approaches, these investigations tend to focus on specific aspects or particular contexts, leaving a comprehensive understanding of the intellectual structure of the field relatively underdeveloped (Lehnert et al., 2021; Chen, 2017; Soaita et al., 2020). Previous studies have examined ecotheology and environmental education from different but separate perspectives. Islamic ecotheology learning by identifying research trends and critical issues (Huda et al., 2026), while Mukhsin & Alfani (2025), focus on integrating Islamic eco-theology into religious education curriculum development, scientific collaboration networks (Huda et al., 2026), map ecological theology in Indonesian Christian scholarship and identify key themes in ecotheology research, but their study does not specifically address Islamic environmental education (Sandiata et al., 2025), and environmental education have not been conducted extensively (Mukhlis & Yustika, 2025) have generally examined these dimensions separately. These studies show that religious ecology, curriculum development, and environmental learning have received scholarly attention. However, they have not yet provided an integrated bibliometric mapping that simultaneously analyzes publication trends, country contributions, collaboration patterns, thematic clusters, and keyword evolution at the intersection of Islamic ecotheology, environmental education, and environmental action. Therefore, this study addresses this gap by offering a more comprehensive mapping of how Islamic ecological values are positioned within sustainability-oriented education and practical environmental initiatives. Consequently, there remains limited bibliometric research that integrates publication trends, collaboration patterns, thematic clusters, and the temporal evolution of keywords to provide a comprehensive mapping of the relationship between Islamic ecotheology and environmental education. This study addresses this gap by combining network, overlay, and

density visualizations to reveal the intellectual structure, emerging themes, and future research directions within this interdisciplinary field. However, mapping the scientific literature is important for understanding the direction of research development (Chotisarn & Phuthong, 2025), identifying influential academic actors (Kanarp et al., 2025), and uncovering new research opportunities (Shi et al., 2025).

One approach to comprehensively examining the development of a scientific field is bibliometric analysis (Nowakowska, 2025). This approach was chosen because the present study aims not only to review the content of previous studies, but also to map the broader structure, patterns, and evolution of research on Islamic ecotheology and environmental education. Unlike a traditional literature review, which mainly provides a narrative synthesis, or a systematic review, which focuses on evaluating selected studies based on specific criteria, bibliometric analysis enables the quantitative mapping of publication trends, citation patterns, author and country contributions, collaboration networks, keyword relationships, and thematic development within a large body of literature (Kumar, 2025). Therefore, bibliometric analysis is considered more appropriate for identifying the intellectual structure, dominant research clusters, and emerging topics in this interdisciplinary field. Given the increasing volume and interdisciplinary nature of studies on ecotheology and environmental education, a bibliometric approach is particularly appropriate because it allows the systematic identification of research trends, intellectual connections, influential contributors, and emerging themes within a large body of literature. By using a bibliometric approach, the development of research on ecotheology and environmental education can be mapped more systematically, providing a clearer picture of the intellectual structure and research dynamics (Kumar, 2025). Based on the aforementioned description, this study aims to analyze the development of research on ecotheology in the context of environmental education through a bibliometric approach. In addition, there is an effort to identify publication trends, influential authors and journals, research collaboration networks, and the main themes emerging in the scientific literature related to ecotheology and environmental education. The findings are expected to contribute theoretically by providing a comprehensive understanding of the intellectual structure and evolution of research in this field, while also identifying emerging themes and potential directions for future scholarly inquiry. Practically, the results may serve as a reference for researchers, educators, policymakers, and environmental practitioners in developing sustainability-oriented educational initiatives and faith-based environmental programs. The results of this research are expected to enrich academic studies on ecotheology and to provide direction for future research and environmental education practices.

METHOD

This study employs a descriptive method with a bibliometric approach. The data were obtained using the Publish or Perish application by retrieving 1,120 publications from Google Scholar as the initial dataset. Google Scholar was selected as the primary data source because it provides broad multidisciplinary coverage, including journal articles, conference papers, books, book chapters, and other scholarly works relevant to Islamic ecotheology and environmental education. This database is particularly appropriate for this study because research on Islamic ecotheology is often published across diverse disciplines and publication outlets, including religious studies, education, environmental studies, and community-based research. In addition, Google Scholar offers wider coverage of publications from developing countries and local academic contexts, which are important for capturing studies related to Islamic environmental education in Indonesia and other Muslim societies. However, because Google Scholar includes publications with varied indexing standards, the dataset was carefully screened and cleaned to ensure relevance and bibliographic completeness before analysis. From this number, 556 relevant articles were selected based on predefined inclusion and exclusion criteria. The inclusion criteria consisted of publications focusing on ecotheology, environmental education, environmental theology, faith-based environmental movements, and tree-planting initiatives within educational or environmental contexts; publications published between 2016 and 2026; and publications containing complete bibliographic information. The exclusion criteria included duplicate records, publications not directly related to the intersection of ecotheology and environmental education, documents with

incomplete metadata, and publications that only mentioned the selected keywords without substantive discussion of the topic. The screening process was conducted through title, abstract, and keyword review to ensure the relevance of the publications. The screening process was conducted through title, abstract, and keyword review to ensure the relevance of the publications. The search process used a combination of keywords related to ecotheology and environmental education, including: "ecotheology" OR "eco-theology" OR "Islamic ecotheology" OR "Islamic eco-theology" OR "environmental theology" AND "environmental education" OR "Islamic religious education" OR "faith-based environmental education" OR "environmental awareness" OR "faith-based environmental movements" OR "tree planting" OR "tree-planting initiatives" OR "environmental conservation". These keywords were selected to capture publications that discuss the intersection of religious ecological values, educational practices, and practical environmental action. The analyzed articles were published between 2016 and 2026.The year 2016 was selected as the starting point to capture the most recent phase of scholarly development in ecotheology and environmental education over approximately the last decade. This period is considered relevant because it reflects the growing academic attention to sustainability, climate change, and faith-based environmental education in contemporary research. Since the data collection was conducted between January and March 2026, this time frame also enables the study to identify current research trends, emerging themes, and the latest development of Islamic ecotheology within environmental education discourse. This period was selected to capture the most recent decade of scholarly development in ecotheology and environmental education, allowing for the identification of contemporary research trends, emerging themes, and the growing integration of religious perspectives into sustainability and environmental education discourses. Data analysis was conducted using VOSviewer software with three types of visualization: network, overlay, and density. Network visualization was used to identify clusters and relationships between topics based on keywords. Overlay visualization displays the temporal distribution of research topic development, while density visualization is utilized to identify topics that are either under-researched or extensively studied (Qirani et al., 2023).

In this study, VOSviewer was used to analyze, visualize, and evaluate the collected article data. The analyzed data include bibliographic pairings of authors, institutions, countries, journals, as well as frequently occurring keywords (Sovacool et al., 2018). This software enables the creation of network maps based on the frequency of word occurrences within a specific field of study (Shah et al., 2020). The bibliometric analysis employed co-occurrence analysis to identify relationships among keywords and reveal the thematic structure of research on Islamic ecotheology and environmental education. In addition, co-authorship analysis was used to examine collaboration patterns among authors, institutions, and countries, while citation-based indicators were used to identify influential publications and scholarly contributions. The analysis was conducted using the full counting method in VOSviewer. To improve the reliability of the visualization, only keywords meeting the minimum occurrence threshold established in the software were included in the network construction, while irrelevant terms and duplicate keywords were removed through data cleaning procedures. The resulting maps were visualized through network, overlay, and density analyses to identify thematic clusters, temporal developments of research topics, and the concentration of research themes. The technique used is bibliometric analysis, a quantitative method that statistically examines bibliographic information in publications or journals. This analysis aims to identify intellectual trends and the latest developments in a research field through the synthesis of large-scale bibliometric data. This approach is generally used when the collected data are extensive and the scope of the study is broad (Misbah et al., 2022).

The stages of bibliometric analysis begin with collecting articles based on keywords using the Publish or Perish application. Subsequently, the article data are processed and analyzed in an integrated manner, and then visualized in the form of network maps using VOSviewer. The five stages of bibliometric research include: (1) determining the focus keywords (2) filtering the initial search results by narrowing them to the specified terms (3) manually selecting data according to research needs using VOSviewer (4) classifying data based on subject descriptions such as countries, institutions, journals, publications, and authors to facilitate statistical presentation (5) interpreting the data narratively based on the findings and VOSviewer visualizations, which display interconnected variable maps through keywords.

RESULTS AND DISCUSSION

The results of the bibliometric analysis in this study are based on previous works which explain that bibliometric analysis begins with VOSviewer, incorporating visual components that illustrate the number of documents as well as the relationships among various sources and frequently occurring keywords. The number of retrieved articles was adjusted to the keywords used in this study, initially reaching 1,120 and subsequently filtered down to 556 publications. The following table presents the output of Publish or Perish:

Table 1. Data Search Matrix

Data Matrix	Search Results
Publication Years	10 (2016-2026)
Papers	556
Citations	11401
Cites/year	1140.10
Authors/paper	2.42
h-indeks	42
g-indeks	98
hl,norm	37
hl,annual	3.70
hA-index	24

Based on Table 1, a total of 556 articles were identified as relevant to the research topic and keywords, representing publications with the highest citation counts. Based on Figure 1, the highest number of publications occurred in 2025, with 214 works accounting for 38.49% of the total publications. This surge may be associated with the growing convergence of several research agendas, particularly climate change, sustainability education, religious environmental ethics, and Islamic education reform. Around this period, studies on Islamic ecotheology began to move beyond conceptual discussions toward more applied themes, such as the integration of eco-theological values into Islamic religious education, environmental curriculum development, pesantren-based ecological movements, and faith-based community conservation. The increasing attention to sustainability-oriented education and practical environmental action may have encouraged more scholars to examine Islamic ecotheology as an ethical and educational framework for responding to ecological crises. Therefore, the publication spike in 2025 reflects not only quantitative growth but also the expansion of the field toward more interdisciplinary and practice-oriented research. In 2026, the number of publications decreased to 54 works (9.71%), which is likely due to the data for the ongoing year not being fully accumulated. During the 2022-2024 period, the number of publications remained relatively stable with a gradual upward trend: 55 works (9.89%) in 2022, 61 works (10.97%) in 2023, and 64 works (11.51%) in 2024. This pattern reflects a phase of consistent growth before reaching its peak in 2025. Meanwhile, in the earlier period (2016-2021), the number of publications was still relatively low but showed a gradual increase. In 2016, only 4 publications (0.72%) were recorded, rising to 9 publications (1.62%) in 2017, 15 publications (2.70%) in 2018, 14 publications (2.52%) in 2019, 30 publications (5.40%) in 2020, and 36 publications (6.47%) in 2021.

This trend reflects the initial stage of the research topic's development, which later grew significantly in the following years.

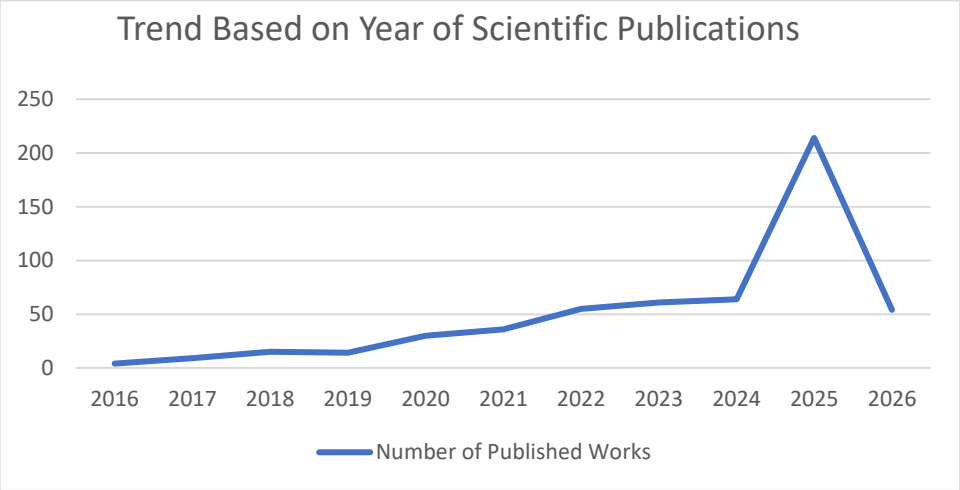

Figure 1. Trend Based on Year of Scientific Publications

The following section presents the trend of publications based on the authors' countries, with a focus on the research keywords used in this study.

Table 2. Publication trends based on authors' countries

No	Authors' Country	Number of Publications	Percentage (%)
1	Indonesia	392	70,50
2	United States	40	7,19
3	Africa	34	6,12
4	United Kingdom	12	2,16
5	Australia	9	1,62
6	Germany	5	0,90
7	Malaysia	5	0,90
8	Turkey	2	0,36
9	Vietnam	2	0,36
10	Sweden	3	0,54
11	Norway	5	0,90
12	New Zealand	1	0,18
13	Philippines	4	0,72
14	Austria	1	0,18
15	Italy	3	0,54
16	Netherlands	3	0,54
17	Pakistan	2	0,36
18	India	5	0,90
19	Libya	1	0,18
20	Hungary	1	0,18
21	Bangladesh	1	0,18
22	Zimbabwe	1	0,18
23	Greece	1	0,18
24	Iran	1	0,18
25	Yemen	1	0,18
26	Spain	2	0,36
27	China	2	0,36
28	Kenya	1	0,18
29	Denmark	1	0,18
30	Uzbekistan	1	0,18
31	Brunei	1	0,18

32	Saudi Arabia	2	0,36
33	Taiwan	1	0,18
34	Switzerland	2	0,36
35	Brazil	1	0,18
36	Latvia	1	0,18
37	Poland	2	0,36
38	Belgium	1	0,18
39	Finland	1	0,18
40	Romania	1	0,18
41	Japan	1	0,18
Total Publications		**556**	**100%**

Based on Table 2, Indonesia occupies the most dominant position with 392 publications, accounting for 70.50% of the total. This dominance may be explained by the strong relevance of Islamic ecotheology to the Indonesian context, where Islamic studies, Islamic religious education, and environmental education have increasingly intersected in response to sustainability issues. As a Muslim-majority country with a large network of Islamic educational institutions, including madrasahs, pesantren, and Islamic universities, Indonesia provides a fertile academic and social context for research on Islamic ecological values, environmental ethics, and faith-based environmental education. Previous studies have also shown that Islamic ecotheology has been increasingly discussed in relation to curriculum development, Islamic religious education, pesantren-based ecological movements, and environmental awareness programs in Indonesia. Therefore, Indonesia's dominance does not merely indicate a numerical concentration of publications, but also reflects the growing integration of Islamic environmental discourse with sustainability-oriented education and community-based ecological practices.

In the subsequent positions, contributions are observed from the United States with 40 publications (7.19%) and records previously classified as "Africa" with 34 publications (6.12%). However, because Africa is a continent rather than a country, this category should not be presented as an authors' country. The metadata needs to be rechecked and disaggregated into specific African countries based on author affiliations. Until this correction is made, the category should be referred to as "African region" rather than "country." Despite ranking second and third, the number of publications from these regions remains substantially lower than that of Indonesia. Furthermore, the United Kingdom (2.16%) and Australia (1.62%) reflect the involvement of countries with well-established research systems, although their contributions remain relatively limited.

Countries with lower yet relatively consistent contributions include Germany, Malaysia, Norway, and India, each contributing approximately 0.90%. In addition, the Philippines (0.72%), along with Italy, Netherlands, and Sweden (each 0.54%), indicate the presence of international contributions, albeit in limited proportions.

The majority of other countries fall into the category of minimal contributions, ranging from 0.18% to 0.36%, encompassing various regions such as China, Saudi Arabia, Poland, Spain, Kenya, and Brazil, among others listed in Table 2. Although their contributions are small, the presence of these countries indicates that the research topic has reached a wide range of global regions, albeit with uneven levels of development and participation.

Next, the authors present the results of the Network Visualization VOSviewer, as shown in Figure 2:

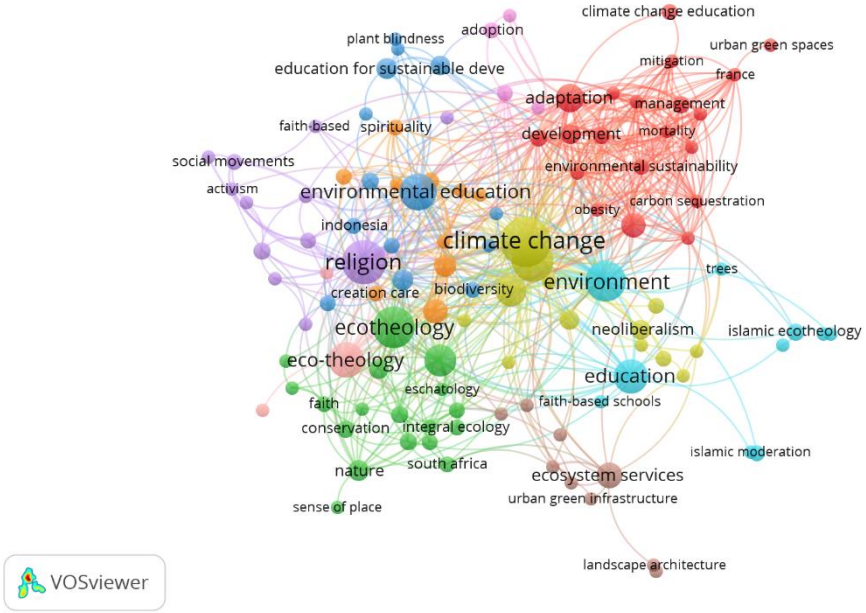

Figure 2. Network visualization VOSviewer

The network visualization presented in Figure 2 illustrates the relationships among keywords in studies on Islamic ecotheology and environmental education based on the analysis of 556 publications. The keyword co-occurrence analysis was conducted using a minimum occurrence threshold to identify the most relevant and frequently appearing terms in the dataset. The visualization formed several thematic clusters that represent the main structure of research in this field. Each node represents a keyword, the size of the node indicates its frequency of occurrence, and the connecting lines indicate the strength of relationships among topics. Based on this visualization, keywords such as climate change, environment, education, ecotheology, and religion emerge as the core themes of the network. This indicates that research in this field is strongly oriented toward the integration of climate change issues with religious, ecological, and educational approaches. This finding also shows a broader development compared with previous research, which has generally examined ecotheology, environmental education, or religious environmental ethics as separate themes. The network structure demonstrates that these topics are not isolated but are increasingly connected within one interdisciplinary research field. The close relationship among climate change, ecotheology, religion, and education suggests that Islamic ecotheology is developing not only as a theological discourse, but also as an educational and practical framework for strengthening ecological awareness and environmental responsibility.

Furthermore, the visualization reveals several major clusters representing key research themes. The first cluster (in red) focuses on climate change and development issues, including keywords such as *climate change*, *adaptation*, *mitigation*, *development*, and *environmental sustainability*, reflecting strong attention to global environmental crisis management strategies. The second cluster (in green) relates to the ecotheological dimension, encompassing *ecotheology*, *eco-theology*, *faith*, *conservation*, and *integral ecology*, which highlights the role of religious values in shaping environmental ethics. The third cluster (in light blue) focuses on education, with keywords such as *education*, *environmental education*, *education for sustainable development*, and *faith-based schools*, indicating the importance of education in fostering ecological awareness. Other clusters also include social and religious dimensions such as *religion*, *social movements*, and *activism*, demonstrating community involvement in environmental movements.

In addition, the visualization shows a strong interconnection among the keywords ecotheology, environment, education, and climate change, as reflected in their relatively larger node sizes and stronger connecting lines compared with other terms. This indicates that research on Islamic ecotheology is closely linked to global environmental issues and educational practices. However, the keyword Islamic ecotheology appears on the periphery of the network with a smaller node and weaker connections to other major keywords, suggesting that this topic is still emerging

and has not yet become a dominant research focus compared with general ecotheology studies. Based on the visualization, several areas remain underdeveloped, particularly studies that specifically connect Islamic ecotheology with environmental education models, tree-planting programs, community-based conservation, ecosystem restoration, and other practical forms of environmental action. Therefore, this visualization indicates that future research needs to move beyond general theological discussion by developing more contextual, empirical, and action-based studies that integrate Islamic ecological values with sustainability-oriented education and local environmental practices.

Next, the results of the overlay visualization VOSviewer can be seen in Figure 3:

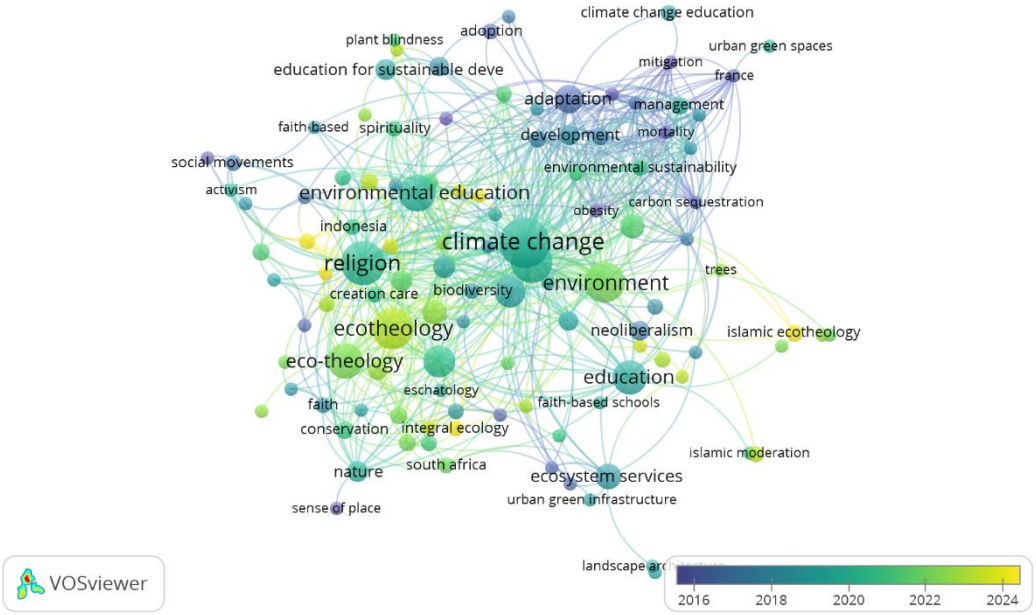

Figure 3. Overlay visualization VOSviewer

Based on the VOSviewer overlay visualization, the results show the temporal development of keywords in studies on Islamic ecotheology and environmental education based on the analysis of 556 publications. In this visualization, the color of each node is determined by the average publication year of the documents in which the keyword appears. Thus, the overlay map does not simply show the publication year of individual articles, but the average year of keyword occurrence across the dataset. Although the dataset includes publications up to 2026, the color scale in the visualization ends around 2024 because the keywords included in the co-occurrence network have average publication year values concentrated within that range. This means that publications from 2025 and 2026 are included in the dataset, but their keywords do not shift the overall average publication year beyond the range displayed in the overlay map.

The overlay visualization indicates a gradual shift in research themes across different periods. Earlier keywords, shown in darker colors, include adaptation, mitigation, management, and development, suggesting that early studies were mainly concerned with general responses to climate change and environmental management. In the intermediate period, keywords such as ecotheology, religion, environment, biodiversity, and environmental education became more visible, indicating the growing integration of ecological issues with theological and educational perspectives. More recent keywords, represented by lighter colors, include Islamic ecotheology, trees, climate change, and education. These terms show that the field has begun to move toward more specific and applied themes, particularly those connecting Islamic ecological values with educational practices and practical environmental action.

This conclusion is supported by the bibliometric structure of the overlay map. Keywords such as climate change, environment, education, and ecotheology appear more centrally and are connected to several other terms, indicating higher occurrence and stronger total link strength in the network. In contrast, Islamic ecotheology and trees appear in more peripheral positions with smaller nodes and weaker connections. This suggests that these themes are relatively new and have

not yet been widely developed compared with broader topics such as climate change, environmental education, and general ecotheology. Compared with previous research trends, which mostly discussed ecotheology, environmental ethics, curriculum development, or religious environmental awareness separately, the emergence of Islamic ecotheology and trees indicates a newer direction in the field. These keywords point to underdeveloped research areas, especially studies on Islamic ecotheology-based environmental education, tree-planting as experiential ecological learning, faith-based conservation, and community-based environmental action. Therefore, the overlay visualization demonstrates that research in this field is moving from general environmental and theological discussions toward more integrative, applied, and sustainability-oriented studies. Next, the results of the density visualization VOSviewer can be seen in Figure 4:

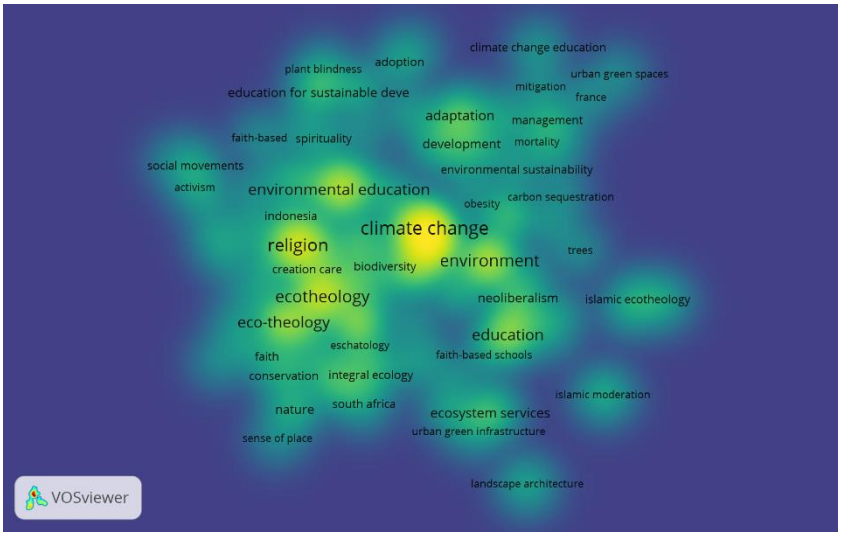

Figure 4. Density visualization VOSviewer

Based on the density visualization, it is evident that research concentration in the field of ecotheology and environmental education is centered around several key terms, such as *climate change*, *environment*, *education*, *ecotheology*, and *religion*. The brightest yellow intensity on the term *climate change* indicates that this topic represents the most dominant focus in the literature, while also functioning as the central axis connecting various other research themes. This finding is consistent with the background of this study, which positions climate change as a global issue that encourages the emergence of multidisciplinary approaches, including the integration of religious values in responding to ecological crises.

Furthermore, areas with high density are also observed around the terms *ecotheology* and *religion*, indicating that spiritual and theological dimensions play a significant role in fostering ecological awareness. The interconnection between *ecotheology*, *education*, and *environmental education* suggests that education serves as a strategic medium for transforming religious values into practical efforts for environmental conservation. This finding reinforces the argument of this study that the integration of moral and spiritual values in education can promote concrete actions in maintaining ecosystem sustainability.

On the other hand, several topics such as *Islamic ecotheology*, *urban green infrastructure*, *landscape architecture*, and *ecosystem services* appear in areas with lower density, indicating that these themes are still relatively underexplored or have not yet become mainstream in the literature. This finding highlights opportunities for further research, particularly in developing more contextual and applied studies of Islamic ecotheology, especially in strengthening practical actions such as tree-planting programs and faith-based environmental movements.

Next, this study discusses the role of ecotheology in promoting ecological awareness and tree-planting movements. Ecotheology has developed as a theological approach that connects religious values with human responsibility toward the environment. From this perspective, environmental crises are not merely understood as ecological or technical problems, but also as moral and spiritual crises in how humans treat nature. Numerous studies indicate that global environmental degradation, such as climate change, deforestation, and biodiversity loss, requires a

multidisciplinary approach that incorporates ethical, spiritual, and religious dimensions in fostering ecological awareness within society (Rusmiati et al., 2023). Therefore, ecotheology serves as an important conceptual framework for integrating religious teachings with sustainable environmental conservation practices.

In the Islamic perspective, ecotheology is rooted in the concept of *khalifah*, which emphasizes that humans are created as God representatives on earth. This concept is reflected in Qur'an Surah Al-Baqarah [2]: 30, which states that humans are entrusted with the responsibility to manage the earth. Within this framework, humans are not positioned as absolute rulers over nature, but rather as stewards responsible for maintaining ecosystem sustainability. Several studies in Islamic ecotheology highlight that the concept of *khalifah* can serve as a foundation for environmental ethics, encouraging Muslim communities to actively participate in environmental preservation and prevent ecological degradation (Rani et al., 2025). Thus, understanding the concept of *khalifah* can strengthen ecological awareness as part of humans' spiritual responsibility toward God's creation.

In addition to *khalifah*, the Qur'an also emphasizes the principle of *amanah* (trust) as a fundamental basis for environmental ethics in Islam. *Amanah* refers to the responsibility entrusted by God to humans to manage the earth responsibly. This is reflected in Qur'an Surah Al-Ahzab [33]: 72, which states that the trust was offered to the heavens, the earth, and the mountains, but it was ultimately accepted by humans. In the context of ecotheology, *amanah* can be understood as the obligation to maintain ecological balance and utilize natural resources wisely. This perspective underscores that excessive exploitation of nature constitutes a betrayal of this divine trust. Research on the integration of ecotheology in Islamic education shows that instilling the value of *amanah* can enhance environmental awareness and foster ecological behavior among religious communities (Achmadin et al., 2025). Therefore, awareness of *amanah* can encourage individuals and communities to engage in concrete environmental actions, including conservation and ecosystem restoration.

Another key principle in Islamic ecotheology is the concept of *mizan* (balance). The Qur'an, in Surah Ar-Rahman [55]: 7-9, emphasizes that God created the universe in balance and commands humans not to disrupt it. The concept of *mizan* reflects the existence of ecological equilibrium that must be preserved to ensure sustainability. Environmental degradation, such as deforestation, pollution, and excessive resource exploitation, represents a violation of this balance. Therefore, *mizan* provides a theological foundation for environmental conservation and sustainable natural resource management (Rusmiati et al., 2023).

Conversely, the Qur'an also strongly warns against environmental destruction through the concept of *fasad fil ardh* (corruption on earth). In Surah Ar-Rum [30]: 41, it is stated that corruption on land and sea is caused by human actions. This verse highlights that environmental degradation is not merely a natural phenomenon, but a consequence of irresponsible human behavior. This perspective suggests that the modern ecological crisis is largely driven by human misconduct toward nature. Studies on environmental ethics within Muslim communities indicate that understanding the concept of *fasad fil ardh* can raise awareness about the negative impacts of human activities and encourage behavioral change toward more environmentally friendly practices (Rani et al., 2025).

The implementation of ecotheological values in social life can be realized through various community-based ecological movements, one of which is tree planting. Tree-planting activities provide significant ecological benefits, such as improving air quality, maintaining ecosystem balance, and mitigating the impacts of climate change. Beyond ecological benefits, such activities also carry educational and spiritual values, as they foster public awareness of the importance of protecting nature as part of a divine trust. Research on ecotheology-based greening movements shows that integrating religious values into environmental conservation programs can increase community participation and strengthen spiritual motivation to protect the environment (Khoiriyah et al., 2025). In this perspective, tree planting can be understood as a concrete manifestation of the principles of *khalifah*, *amanah*, and *mizan* in everyday life.

Furthermore, tree-planting movements grounded in ecotheological perspectives can strengthen collective awareness within society to maintain environmental sustainability. Conservation activities associated with religious values tend to have stronger social mobilization power, as they are perceived as part of religious practice and moral responsibility toward God

creation. The integration of ecotheological values in education and social movements has also been shown to promote more sustainable ecological behavior among religious communities, including activities such as reforestation, waste management, and natural resource conservation (Fanan & Fauzi, 2024). Thus, tree planting not only functions as an ecological effort to restore ecosystems, but also serves as a means of building collective awareness regarding the importance of maintaining environmental balance as part of human moral and spiritual responsibility (Ruiz-Mallén & Corbera, 2013).

Research Implications

The results of this study indicate that the study of Islamic ecotheology and environmental education has undergone significant development, particularly in linking religious values to issues of sustainability and environmental initiatives. Bibliometric findings indicate that the themes of climate change, environmental education, ecotheology, and religion have received significant attention in the scientific literature. This suggests that religious approaches have great potential as an ethical and spiritual foundation for building public ecological awareness.

Theoretically, this study strengthens the position of Islamic ecotheology as a multidisciplinary approach that integrates theological, educational, and environmental conservation dimensions (Sapitri et al., 2025). Islamic concepts such as *khalifah* (stewardship), *amanah* (moral responsibility or trust), *mizan* (balance), and *fasad fil ardh* (environmental destruction or corruption on earth) are relevant as moral foundations in responding to the global environmental crisis (Rahmat et al., 2025). Thus, this study contributes to the development of a more contextual and applicable conceptual framework for environmental education based on Islamic values.

Practically, this study demonstrates that faith-based environmental movements, such as tree planting and community-based conservation, can be effective means of increasing public participation in environmental issues (Ghafran & Yasmin, 2025). The integration of spiritual values into ecological action not only fosters individual awareness but also strengthens collective community movements in maintaining environmental sustainability, particularly in Indonesia, a predominantly religious society (Kirin & Kariman, 2026).

Another implication of this research relates to strengthening environmental education for the broader community. Environmental education should not only emphasize knowledge about climate change and environmental degradation, but also address the development of community awareness, concern, and social responsibility for the surrounding environment (Aldawsari et al., 2025). In this context, an Islamic ecotheological approach can be an effective medium for instilling ecological values, as communities are more receptive to environmental messages linked to religious teachings and daily life (Muttaqin et al., 2026).

Environmental education based on Islamic ecotheology can be implemented through various social spaces, such as religious activities in mosques, religious study groups (*Majelis Taklim*), community organizations, youth communities, and village empowerment programs (Febrianingsih et al., 2025). Conveying environmental values through a religious approach can help communities understand that maintaining environmental cleanliness, caring for trees, conserving water, and reducing environmental degradation are not merely social activities but also part of humanity's moral and spiritual responsibility towards God's creation (Yono & Devi, 2025).

This approach can strengthen a culture of environmental awareness at the community level. Simple activities such as community service, village greening, household waste management, water resource conservation, and green space utilization can develop into sustainable social movements if supported by religious values and local community leaders (Slobodníková & Tóth, 2025). The role of religious leaders in providing education and leading by example is also crucial because they have a strong influence on shaping community mindsets and behavior.

This research also shows that community-based environmental education has the potential to build collective ecological awareness. This awareness is crucial because various environmental problems, such as pollution, flooding, illegal logging, and the waste crisis, cannot be resolved through government policy alone but require the active involvement of the community in collective environmental protection. Therefore, an ecotheological approach can be an alternative to

strengthen public participation in more sustainable environmental conservation efforts (Aryanto et al., 2025).

The results of this research also open up opportunities for collaboration between the government, educational institutions, religious leaders, and community groups in developing environmental programs based on religious values. This approach can strengthen socio-ecological initiatives that are not only educational but also encourage more sustainable changes in community behavior (Nienaber & Imrie-Kuzu, 2025).

Future Research Directions

Based on the results of the bibliometric analysis, various research opportunities remain for future development. Studies on Islamic ecotheology need to be directed toward more empirical and action-based research, particularly regarding the implementation of environmental movements such as tree planting, ecosystem restoration, and community-based conservation involving religious institutions and local communities. This approach is crucial for examining how religious values are applied in practical environmental conservation efforts (Nur, 2025).

Studies on the integration of Islamic ecotheology into formal and non-formal education also remain widely open (Febrianingsih et al., 2025). Research can be directed at shaping students' ecological behavior, strengthening environmental awareness through religious values, and implementing environmental education in schools, madrasahs, Islamic boarding schools (*pesantren*), and local communities. Furthermore, developing environmental education models appropriate to the social and cultural context of Indonesian society is also an important aspect requiring further in-depth study (Albar et al., 2025).

Developing learning models through the concepts of green Islamic boarding schools (*pesantren*), sustainable schools, and ecological movements based on mosques and religious organizations can be a crucial part of strengthening environmental education in the community. This approach positions the environment not only as a learning material but also as part of everyday life practices and the social culture of the community (Ahmar & Azzajjad, 2025).

Interdisciplinary studies linking theology, education, the environment, social studies, and public policy also offer ample scope for development (Juliana et al., 2025). Increasingly complex environmental issues require approaches that not only rely on scientific and technical aspects, but also consider the cultural, moral, and spiritual dimensions of society.

The VOSviewer density visualization results indicate that several themes, such as Islamic ecotheology, urban green infrastructure, ecosystem services, and landscape architecture, remain relatively under-covered in scientific publications. These themes offer opportunities for further development, particularly in relation to sustainable development, urban green space management, and strengthening community socio-ecological resilience.

Going forward, research on Islamic ecotheology is expected to develop not only conceptually but also to make concrete contributions to the development of environmental education, strengthening faith-based environmental movements, and environmental sustainability policies within communities.

LIMITATION

This study provides a comprehensive overview of research trends in Islamic ecotheology and environmental education; however, several limitations should be acknowledged. The bibliometric dataset was collected solely from Google Scholar through the Publish or Perish application. While this database offers extensive coverage of academic publications, it also includes documents with varying levels of quality and indexing standards, which may influence the accuracy of bibliometric indicators. The dataset was further constructed using selected keywords related to Islamic ecotheology and environmental education, meaning that relevant studies employing different terminologies or conceptual frameworks may not have been included in the analysis. The findings are based on quantitative bibliometric mapping using VOSviewer and therefore focus on publication trends, thematic structures, and keyword relationships rather than evaluating the methodological quality, theoretical depth, and empirical contributions of individual studies.

Furthermore, the dominance of Indonesian publications within the dataset may influence the representation of global research trends and should be considered when interpreting the findings.

CONCLUSION

This study demonstrates that research on Islamic ecotheology and environmental education has shown a substantial increase in publication trends and has evolved into an interdisciplinary field linking theology, environmental sustainability, and educational practices. Bibliometric analysis reveals that themes such as climate change, environment, religion, ecotheology, and environmental education dominate the scholarly landscape, with Indonesia emerging as the leading contributor to publications in this area. The VOSviewer visualizations indicate a shift from conceptual and theoretical discussions toward more practical and action-oriented topics, including faith-based environmental movements, conservation initiatives, and tree-planting programs. Islamic concepts such as *khalifah*, *amanah*, *mizan*, and *fasad fil ardh* provide important ethical and spiritual foundations for environmental responsibility and ecological awareness. Furthermore, the findings suggest that the integration of ecotheological values into environmental education and community-based environmental initiatives represents a prominent direction within the existing literature for addressing environmental challenges. Although research on Islamic ecotheology continues to expand, several themes remain underexplored, including urban green infrastructure, ecosystem services, and contextual ecological practices, thereby offering broad opportunities for future empirical and action-oriented studies.

AUTHOR CONTRIBUTIONS

KF conceived the study, designed the research methodology, collected and curated the bibliometric data, performed the formal analysis using Publish or Perish and VOSviewer, interpreted the findings, and prepared the original draft of the manuscript. MSY contributed to the conceptualization, methodology, data validation, and interpretation of the results. EIAD assisted in the bibliometric analysis, visualization, and critical interpretation of the research findings. EZM contributed to the investigation, literature review, and manuscript revision. NN supervised the research process, provided methodological guidance, and critically reviewed the manuscript. RFMA contributed to the conceptualization, project administration, manuscript review and editing, and overall supervision of the study.

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