



Global Trends and Interdisciplinary Dynamics of Environmental Discourse (2005-2025): A Bibliometric Analysis Based on CiteSpace and VOSviewer

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Abstract

Since recent years have witnessed with the acceleration of industrialization and urbanization, environmental discourse has become increasingly prominent in the scholarly circle. In this study, CiteSpace and VOSviewer are employed to gain holistic insights into environmental discourse research and capture the recent research foci. Through a detailed review of literature on environmental discourse, this research aims to describe and analyze the research progress of environmental discourse as objectively as possible to provide significant implications for researchers to carry out relevant studies. Several vital points are identified: 1) The rise of trans-disciplinary trends in environmental discourse have encompassed multiple perspectives, covering environmental politics, environmental sociology, environmental anthropology, environmental geography and environmental communication, etc; 2) Current topics in environmental discourse, such as environmental policy, environmental education and environmental psychology, are receiving increasing attention from researchers, and the functional role of environmental discourse in social operation and national policy-making management has become significant; 3) The extensive myriads of analytical methods of environmental discourse combining qualitative methods and quantitative methods are prone to be diverse and comprehensive; 4) Various philosophical frameworks related to ecosophy, including sustainable development, ecological modernization, and environmental justice, have been integrated into environmental discourse research, providing important theoretical support for the construction of environmental discourse systems.

Subject Areas

Linguistics

Keywords

Environmental Discourse, Citespace, VOSviewer, Research Frontiers

1. Introduction

Since the Industrial Revolution, a new era has arisen, the Anthropocene, in which human actions have become the main driver of global environmental change [1]. Global warming, ozone destruction, species extinction, seawater acidification, freshwater shortage and other environmental problems are becoming increasingly deteriorating, and the global ecosystem is on the verge of collapse. Global climate change and the increasing frequency of extreme weather events have become common challenges threatening the survival and development of humanity. These pressing realities have prompted an “ecological turn” in the humanities, with environmental issues gradually emerging as a central concern of interdisciplinary researches [2]. Discourses concerned with the perceived global environmental crisis have increased dramatically over the past couple of decades. With the rise of ecological linguistics, the “Anthropocene” discourse model has begun to be criticized by the academic community, and the concept of “Anthropocentrism” constructed on its basis has also been questioned [3], which provides a new inspiration for the construction of the discourse system. An increasing number of linguists have begun to explore the construction of language and environment from the perspective of “interactive” discourse mode, calling for the obligation and responsibility to protect the earth and solve environmental problems. The book *Greenspeak: A Study of Environmental Discourse* [4] is the first monograph to formally propose the linguistics turn to environmental discourse research, which advocates to use language as the core and analyze environmental discourse in combination with other disciplines. Subsequently, the study of environmental discourse has aroused the interests of scholars from multiple disciplines in the scholarly circles. Convinced of the merits of integrating linguistic research with multidisciplinary perspectives to promote the innovative development of environmental discourse research, this study reviews existing studies and puts forward insights into the research trends of environmental discourse, aiming to provide a reference for the in-depth development of related research.

2. Definition

Both the term “discourse” and “environment” can be subject to a multiplicity of interpretations and uses in various disciplines. In the field of linguistics, especially discourse analysis, scholars regard environmental discourse as a new form of discourse. Specifically, environmental discourse, also known as ecological discourse and green discourse, was once synonymous with nuclear energy discourse [5]. Social constructivism linguists tend to advocate that environmental discourse should be a collection of perceptions of various environmental issues, which reflects the

subjective interpretation and meaning declaration of actors for specific social phenomena. Dryzek [6] further regards environmental discourse as an important method to construct, explain, discuss and analyze environmental issues, which reflects the dominant ecological ideology and affects the public's ecological outlook. Additionally, from the relationship between language and ecology, Mühlhausler and Peace [7] define environmental discourse as “a linguistic form to explore the relationship between human beings and the natural environment”. Similarly, linguists firmly believe that innumerable things, processes and relationships that human beings call environment, and how they work and how we deal with them are essentially discourse problems [8]. Examples include the negotiation and implementation of the Paris Agreement and the COP28 process, which fundamentally involve contestation and consensus formation among environmental discourses of various states and interest groups. Post-COVID-19 global green recovery initiatives, together with the environmental crises sparked by frequent extreme weather in 2024, have further underscored the pivotal function of environmental discourse in building social consensus and shaping policy responses [9] [10].

From the existing definitions, the ambiguities and uncertainties of the connotation of environmental discourse have led to the non-unity of its conceptual category. This study contends it as comprising the linguistic devices articulating arguments about the relationship between human beings and the natural environment. Therefore, environmental discourse provides a thinking tool and conceptual means for people to understand and communicate with the environment, which is of great significance to the construction, maintenance and change of the environmental reality.

3. Literature Review

As a new type of discourse, environmental discourse has gradually received the enthusiastic attention of numerous scholars at home and abroad, and copious theoretical methods analyzing environmental discourse surrounding a wide range of ecological issues have been accumulated, covering ecological linguistics [11], cognitive linguistics [12], critical discourse analysis (CDA) [13], etc. Specifically, many researchers endeavor to carry out environmental discourse studies from different perspectives, such as the types [8] [14], lexical choices [15] and social functions [16] [17] of environmental discourse.

To be specific, from the types of environmental discourse, Dryzek [6] systematically divides environmental discourse into four categories: “problem solving” “survivalism” “sustainability” and “green radicalism”, which provides a beneficial guidance and model for the follow-up study of environmental discourse. In terms of vocabulary selection, environmental discourse was mainly composed of scientific and technological vocabulary for public issues in western industrial countries during the late 1960s, and it is worth noting that these words related to environmental discourse are full of various metaphors. For example, aquaculture industry

discourse and national institution discourse guide the public to use euphemisms, such as “pork”, “beef” and “animal agriculture” instead of “pig” “cow” and “live-stock industry” to remove the ethical pressure of the public and commercialize animals [18]. Moreover, in terms of social function, environmental discourse refers to a systematic construction practice of social cognitive meaning [19]. For example, Stibbe [3] distinguishes between “destructive discourses” and “beneficial discourses”, and these “discourse” are essentially constructed based on social cognitive differences.

However, many scholars have investigated environmental discourse from multiple micro-perspectives with various methods, which lacks relatively holistic review and evaluation. CiteSpace and VOSviewer, as effective bibliometric tools, can be employed to access the current hotspots and frontiers of a specific domain in terms of its diversified functions. Therefore, based on CiteSpace and VOSviewer, this article employs the Web of Science (WoS) core database to investigate the evolution and envision of environmental discourse, attempting to provide the meaningful guidance for the further study. As such, this study attempts to solve the following questions:

Q1: What is the growth trajectory of publications in the field of environmental discourse?

Q2: What implications and insights for environmental discourse can be obtained from the bibliometric analysis?

Q3: What main research foci and trends have gained the greatest attention from the keyword-occurrence and keywords clusters analysis?

4. Research Design

This section is concerned with the research design of this paper. It mainly consists of data collection, research methodology and research procedures.

4.1. Data Source

Data collection plays a pivotal role in determining the reliability and validity of bibliometric reviews. Web of Science (WOS) is one of the world’s most authoritative literature indexing databases, covering the Science Citation Index (SCI), Social Sciences Citation Index (SSCI), Arts & Humanities Citation Index (A&HCI) and Emerging Sources Citation Index (ESCI).

Literature retrieval is conducted in the Topic field with the exact search term “environmental discourse”. No Boolean operators are adopted in the retrieval strategy, and all journals indexed in the four core WOS databases are included in the search scope.

After retrieval, duplicate records are removed. We further exclude the following non-original research document types: review articles (596), proceeding papers (71), editorial materials (99), early access papers (271), book reviews (21), book chapters (16), meeting abstracts (7), corrections (5), reprints (2), retracted publications (10) and letters (5). Only original research articles are retained as candi-

date samples.

No filters on language or disciplinary boundaries (e.g. linguistics, discourse analysis) are set during retrieval. Since the Topic field broadly matches keywords, titles and abstracts, the retrieved dataset contains numerous papers covering environmental science, climate change, environmental governance and environmental policy. These studies explore environmental discourse from interdisciplinary perspectives. Therefore, no extra relevance screening is implemented, and all qualified records are reserved for subsequent analysis.

After the above retrieval and screening procedures, a total of 7285 documents are obtained as the research sample of this paper. All literature records are exported from WOS on January 20, 2026.

4.2. Research Methodology

As the most frequently used tool in bibliometrics, science mapping presents the current status of research and possible developmental directions. In this paper, CiteSpace [20] and VOSviewer [21] are utilized for data analysis. Bibliometric software CiteSpace provides an effective method in systematic scientometric review, which is mainly employed to present the structure and distribution of scientific knowledge and to identify hot trends in scientific development.

To be specific, CiteSpace provides two indexes, module value (Q value) and average contour value (S value), according to the network structure and the clarity of clustering, which can be used as a basis to judge the effect of atlas rendering [20]. Generally speaking, Q value > 0.3 and S value > 0.5 indicate that the clustering effect is reasonable. The drawing of knowledge map needs to select different threshold values to draw for many times, and select a better map according to Q and S values as the final result. In this paper, CiteSpace generates a total of 8 clusters, and the cluster tags are automatically extracted from the keywords by the program. Obviously, in the present analysis, the node keywords in the obtained clusters have strong relevance, and the clustering results are rather reliable.

VOSviewer is another bibliometric mapping software used for co-occurrence and co-citation analysis [21]. Prior to data processing, filtered data would be imported into network data set for visualizing and exploring maps. To illustrate and satisfy different research objectives, the network, overlay and density visualization are available for data representation. In this research review, both CiteSpace and VOSviewer are employed to represent the current studies of environmental discourse.

4.3. Research Operation

During this investigation, the following tasks were accomplished: 1) descriptive statistical analysis, including the distribution of publications, with the goal of gaining a comprehensive picture of this field; 2) collaboration network analysis of nations and institutions, is intended to describe the main contributions of environmental discourse from the macro and medium levels; 3) research hotspots,

analyzing the current research hotspots of environmental discourse through keyword co-occurrence network analysis and keyword clustering. The specific operation flow chart is as follows (**Figure 1**).

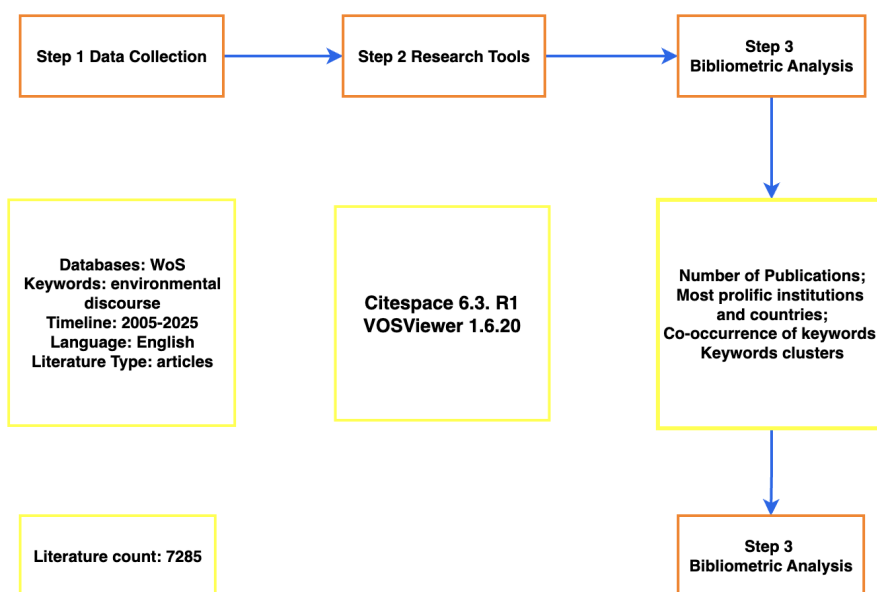


Figure 1. Steps of the bibliometric analysis of environmental discourse (2005-2025).

5. Research Results and Analysis

In this section, the authors conduct a bibliometric analysis of environmental discourse focusing on the number of publications, aiming to reveal the origin, development and maturity stages of environmental discourse.

5.1. Analysis of Number of Publications

Based on the result analysis tool provided by WOS, 7,285 documents are statistically analyzed according to the time axis. The chronological distribution of environmental discourse related articles is shown in **Figure 2**, which can visually display the origin, development and maturity stages of environmental discourse.

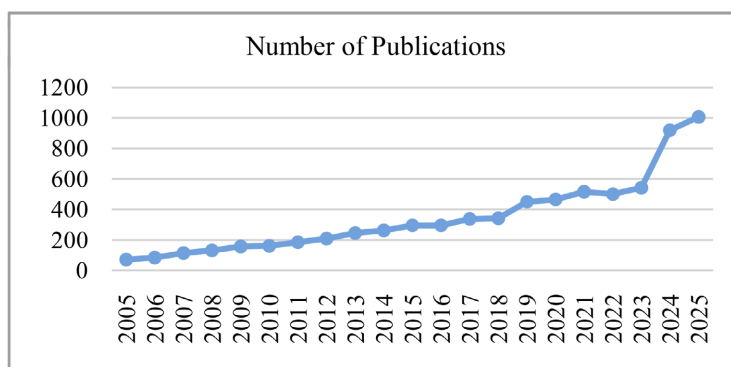


Figure 2. Number of publications in terms of environmental discourse (2005-2025).

A promising sign of the rise and consolidation of environmental discourse research is the increasing number of scholarly publications. To systematically sort out the overall evolution trajectory of environmental discourse research over the past two decades, this study takes 2005 as the starting year of time-series analysis. With more than 20 years' development, although the number of publications shows an overall upward trend, studies on environmental discourse in different periods are not balanced. This study divides the whole research timeline into four developmental stages based on a multi-dimensional judgment system, including the annual publication volume growth rate, emergence of landmark academic organizations and monographs, interdisciplinary theoretical integration degree, and construction of professional academic journals et al. Specifically, it can be broadly classified into the following four stages according to the number of publications: the initial period (2005-2006) the rapid development period (2007-2018), the relative maturity period (2019-2023) and the explosive growth period (2024-present).

1) The initial period (2005-2006). With the continuous development of industrial society, the natural environment, which human beings depend on survival is deteriorating rapidly. The constant outbreak of "environmental issues" has begun to attract the public's attention. Stibbe established the international organization "The International Ecolinguistics Association" in 2005, attracting more than 600 scholars and environmentalists from more than 20 countries, who pay attention to the relationship between language and environment. Subsequently, the study of environmental discourse is gradually emerging. There appear some theoretical books on the introduction and elaboration of environmental discourse, such as Dryzek's *Geopolitics: Environmental Discourse*, which summarizes the definition and classification of environmental discourse. This stage laid the foundation for the subsequent development of environmental discourse research by establishing basic theoretical frameworks and attracting academic attention.

2) The rapid development period (2007-2018). With the gradual integration of various disciplines, environmental discourse analysis has gradually integrated the research achievements of cognitive science, anthropology, politics as well as sociology, and made further developments. For example, Lakoff, an important founder of cognitive linguistics, publishes a report entitled "Why it matters how we frame the environment" [22], discussing how to use "framing", an important theoretical tool of cognitive linguistics, to build a constructive environmental framework. Hajer and Versteeg [23] evaluate the contribution of the study of environmental politics to environmental discourse analysis from 1995 to 2005 in "A decade of discourse analysis of environmental politics: Achievements, challenges, perspectives". In addition to a large number of monographs, there are also magazines specializing in environmental discourse, such as *Text, Journal of Environmental Policy & Planning, Discourse and Society* and *Discourse studies*, etc. *Text*, started by Van Dijk, is the first international journal to systematically study discourse. Furthermore, as a prestigious international journal, *Journal of Environ-*

mental Policy & Planning provides a forum for the critical analysis of environmental policy and planning, which guides the development of environmental protection theory and practice. Since then, the number of papers has increased rapidly, showing that the environmental discourse research was in a period of rapid growth. The integration of multi-disciplinary theories and methods, as well as the emergence of specialized academic platforms, has strongly promoted the in-depth development of the field.

3) The relative maturity period (2019-2023). After 2019, there are relatively more articles concerning environmental discourse, demonstrating that environmental discourse has been attracting more attention and undergoing rapid research progress. This stage is characterized by the maturity of research theories and methods, the diversification of research topics and the close combination of research and practical applications. The continuous increase in the number of publications reflects the strong academic vitality and practical demand of the field.

4) The explosive growth period (2024-present). 2024 marked the hottest year on record for Earth, with frequent extreme weather events triggering global high alert over environmental crises, leading to a surge in academic demand for environmental discourse researches. The number of publications soared from 542 in 2023 to 921 in 2024, achieving explosive growth. In 2025, the number of publications reaches the highest, with a total of 1007 articles published. These data fully demonstrate that amid the worsening global ecological crisis, the academic value and practical significance of international environmental discourse researches have received unprecedented attention, becoming a core interdisciplinary topic connecting environmental science, political science, linguistics and other fields.

5.2. Collaboration Network Analysis

This subsection mainly analyzes the knowledge graphs of the countries and institutions, aiming at revealing the current status of environmental discourse research and providing directions for the further research in this field.

Network Analysis of Countries

We select the node as “Country” and draw a cooperation network. The countries cooperation network of environmental discourse is depicted in **Figure 3**. The size of the node represents the number of publications and the connection between the nodes represents the cooperation among the countries. The thickness of the purple ring reflects the betweenness centrality, which shows the importance of a node in cooperation. All software parameters for replicating analyses are presented in the upper-left corner of the Figure.

As to the publications, it is notable that there are far more papers from USA, whose publications are 1.6 and 2.7 times than that of England and Australia respectively. It demonstrates USA’s prolific and fruitful contributions to a wide range of articles. Additionally, the most productive countries of environmental discourse are gathered in Canada, Germany, Netherlands, Sweden, The People’s Republic of China, Spain and France. Regarding to centrality of individual coun-

tries, the specific centrality progression is as follows: England > Australia > Germany > USA, etc. It is noteworthy that England shows the highest centrality, demonstrating its active engagement in extensive collaboration with other countries in the field of environmental discourse despite relatively less papers compared to USA. Additionally, it can be seen that the network of overall countries for this area is relatively tight, which demonstrates further and deep academic communication and cooperation among countries.

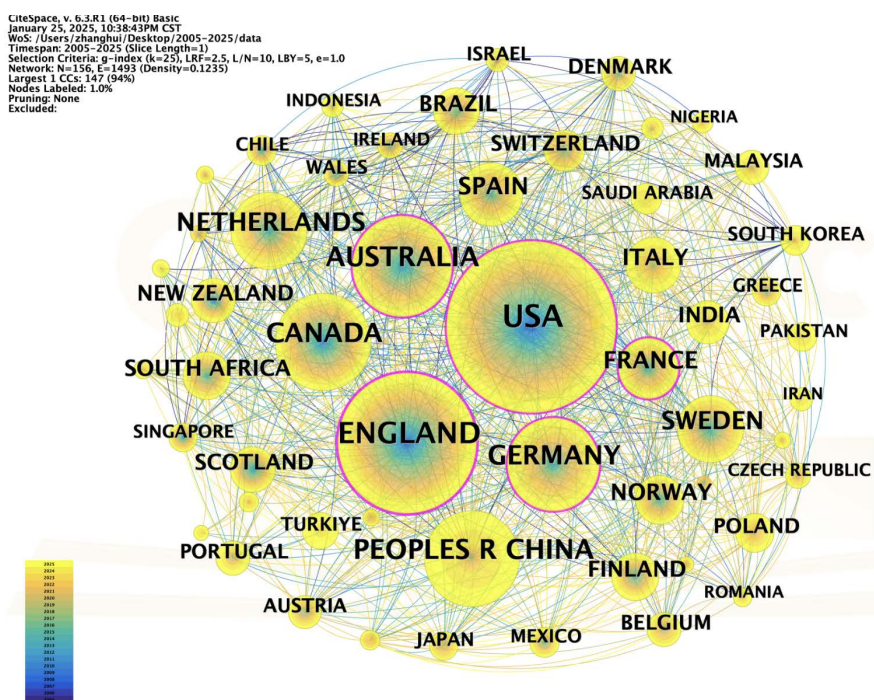


Figure 3. Network analysis of countries in environmental discourse (2005-2025).

Network Analysis of Institutions

Surveying the distribution of institutions is essential for identifying direction of this field. A visualization map of environmental discourse for research institutions is drawn (**Figure 4**). The number of articles issued by each institution is represented by the size of the front, and the academic cooperation between the institutions (reflected as citations) is indicated by the line between the citation cycles [24]. All software parameters for replicating analyses are presented in the upper-left corner of the Figure.

As shown in **Figure 4**, prolific universities include University of London, University of California, University of British Columbia, University of Oxford, University of Leeds and University of Toronto, etc. Most of these research institutions are internationally renowned universities, which facilitate the development of multi-field research in the field of environmental discourse.

To be specific, as a well-known institution with important research centers in various fields, University of London ranks first in the fields of environmental science and ecology. Therefore, it is no denying that it has unparalleled strength and

superiority in environmental discourse research. Then followed by the Wageningen University & Research. With complete facilities and talents, it is always committed to conducting interdisciplinary scientific research to address environmental challenges at regional, national and global levels and strives to develop in-depth collaborations with prestigious national institutes. Then University of California System ranks third. As one of the largest and most prestigious international education colleges in USA, the University of California has launched the Environmental Science, Policy, and Management (ESPM) Graduate Program, providing a wealth of opportunities for students interested in careers in academia, government, and non-governmental agencies worldwide. Its faculty are internationally recognized, and ESPM is the campus hub for connections to other renowned Berkeley programs in the environment such as the Energy and Resources Group, Agricultural and Resource Economics, the Goldman School of Public Policy, Integrative Biology, Berkeley Natural History Museums, and Berkeley Law. Similarly, University of British Columbia actively collaborates with leading universities, research institutes, and provides significant international academic communication and yields fruitful achievement on environmental issues. Then the Centre National de la Recherche Scientifique (CNRS) ranks fifth. It is the only non-university scientific research institution among the top five and a highly influential public research platform in Europe. Relying on its 11 research divisions across France and more than 300 international cooperation agreements worldwide, CNRS has established long-term and stable cooperative relations with institutions such as the University of Oxford, the University of Toronto, and the Chinese Academy of Sciences.

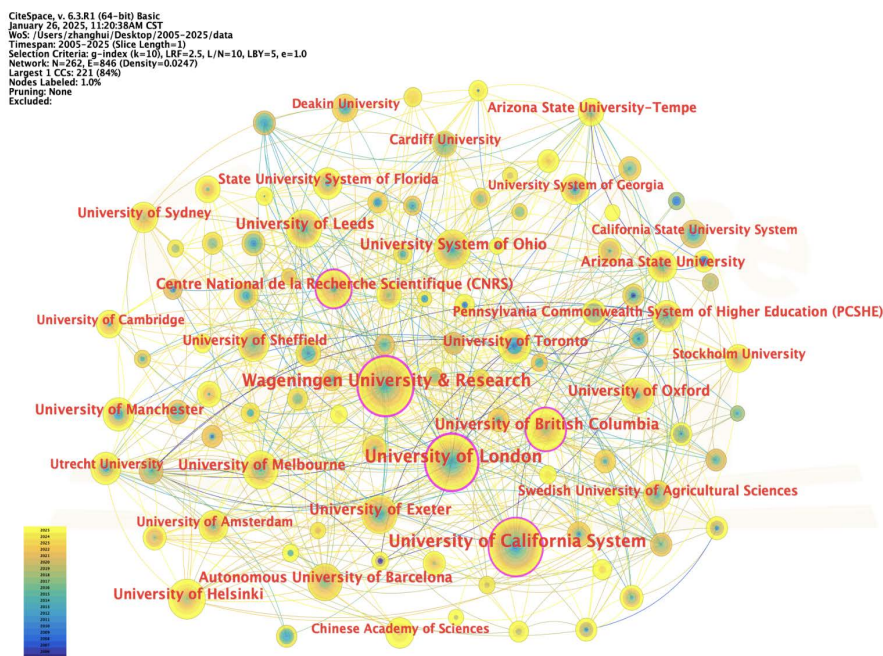


Figure 4. Network analysis of institutions in terms of environmental discourse (2005-2025).

11

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Figure 5. Visualization map of co-occurrence of keywords in terms of environmental discourse (2005-2025).

VOSviewer can also export the map of density visualization (**Figure 6**). According to Van Eck and Waltman [21], keywords in the map have the similar way as in the network visualization, and each item owns its self-color to identify the density of keywords at that point.

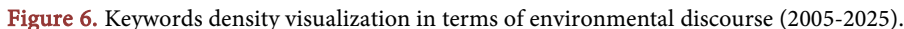


Table 1. Top 40 keywords in terms of environmental discourse (2005-2025).

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Continued

13	247	2006	discourse analysis	33	141	2006	environmental policy
14	243	2005	power	34	139	2009	corporate social responsibility
15	227	2006	discourses	35	130	2006	geography
16	217	2015	impact	36	130	2008	biodiversity
17	195	2011	framework	37	130	2011	participation
18	190	2007	health	38	123	2007	communication
19	186	2005	community	39	122	2010	innovation
20	186	2005	political ecology	40	121	2008	impacts

Synthesizing the visualization map in **Figure 6** and categorizing the attributes of the high-frequency keywords in **Table 1**, it is observable that the research keywords of environmental discourse are mainly distributed in the following three aspects: the cross-disciplinary studies in environmental discourse, the research domains in environmental discourse and the analytical methods in environmental discourse.

The first part of topic is concerned with trans-disciplinary trends of environmental discourse studies, proposing that the complexity of discourse demands new ways of knowing based on trans-disciplinary. As wicked problems of the current times, such as environmental sustainability, have to be addressed by multiple perspectives, we also see influential environmental discourse studies investigating, documenting and encouraging trans-disciplinary and interdisciplinary inquiries [7] [26]-[29]. This is apparent from some of the most frequently mentioned terms in this cluster: “governance” “policy” “power” “sustainability” and “biodiversity”, which are related attractive concepts in the field of numerous disciplines, demonstrating the rise of trans-disciplinary trends in environmental discourse have encompassed multiple perspectives (a complete list is provided on **Table 1**). For example, advocates of environmental sociologists focused on conceptualizations of environment-society relations, which has much potential to enrich academic environmental discourse studies in the wider field [30], emphasizing environmental discourse are essentially regarded as social constructions in the ecological environmental framework [31]. Indeed, trans-disciplinary is a key concept undergirding the whole field of the environmental discourse studies, and a way of thinking that futurists need to espouse to be able to investigate.

The second part explores research domains in environmental discourse, is concerned about the environmental policy, health, agriculture and education, and committed to use different types of discourses in environmental issues. Indeed, some of the most frequently mentioned terms in this cluster are “sustainable development” “conservation” “consumption” “sustainability” as well as “climate change” (a complete list shown by **Table 1**). The early environmental discourse studies mainly focused on the close relationship between environmental crisis and economic development, and frequently center on the types of the destructive dis-

course that has a greater effect on the ecological environment, such as ecological limitalism discourses of consumerism [6] [32] and intensive agriculture [33]. Later influential studies were majorly concerned with a common theme: legitimacy of green or sustainability discourse. Indeed, the most cited article in environmental discourse studies is *The Politics of the Earth: Environmental Discourses* by Dryzek [34], which finds economically feasible strategies for the ways that people use language on environmental issues and emphasizes ecological modernization of the balanced development of economic growth and environmental protection through improving management, technology and social organization [35] [36]. Therefore, scholars active in this area are more concerned with other themes related to the environment, such as “environmental policy” and “environmental education” (EE), etc., have become new popular topics in the study of environmental discourse, and substantial studies of environmental discourse have usefully identified dominant discourses and their implications for policy [37] [38], the adoption of new sustainable agricultural technologies [39]-[41] and identifying the education that lead to green and sustainable consumption [42] [43]. This reflects that environmental discourse research is gradually shifting from theoretical exploration to practical application, and its role in guiding policy formulation and social practice is increasingly prominent.

The third past is concerned with exploiting environmental discourse studies techniques to produce actionable insights to enrich scope of studies. Based on the most frequently mentioned terms in **Table 1**, those keywords such as “framework”, “challenges” “innovation” as well as “corporate social responsibility”, this cluster mainly refers to research methods in environmental discourse. Here, framing comes to the fore. The method is used and explained in cognitive linguistics, becoming one of the most popular methods with the underlying cognitive mechanism [22]. The still influential article in this regard was Alexander [44], that explores how politicians, enterprises, industries as well as media, etc. construct environmental discourse by framing methods, and tries to reveal the ecological cognitive problems hidden behind environmental discourse. Later, social construction has more recently been appropriated to be as an environmental discourse analytical focus. Likewise, there are strong tendencies in environmental discourse to adopt a shared worldview based in part on one or a few dominant metaphors [45]. Previous studies have proved that the way metaphor shapes the concept of environmental sustainability and influence mainstream environmental awareness [45] [46]. The construction of beneficial environmental discourse refers to reshape the harmonious development between man and nature, which needs to be publicized, encouraged and supported [3]. Throughout this stream of research, a common recommendation is to use a combination of multiple methodologies, a key to forecast emerging technologies and discover new opportunities. Overall, those above important concepts in cognitive linguistics have relatively strong explanatory powers for meaning construction and conceptual awareness interpretation, and can reveal the underlying psychological operation mechanism hidden in

the surface structure of environmental discourse. Therefore, it is expected to become the preferred combination of perspectives for the future environmental discourse research. Therefore, the integration of multiple research methods is expected to become the preferred combination of perspectives for future environmental discourse research, which helps to improve the comprehensiveness and depth of research.

Analysis of Keywords Clusters

Keyword visualization map analysis can only grasp the evolutionary context of knowledge association and is inadequate to capture the vagaries of an academic field, because they do not account for the impact of the timeliness of various publications [47]. For this reason, we conduct clusters analyses of keywords to highlight emerging research directions and cutting-edge in terms of environmental discourse (Figure 7). All software parameters for replicating analyses are presented in the upper-left corner of the Figure.

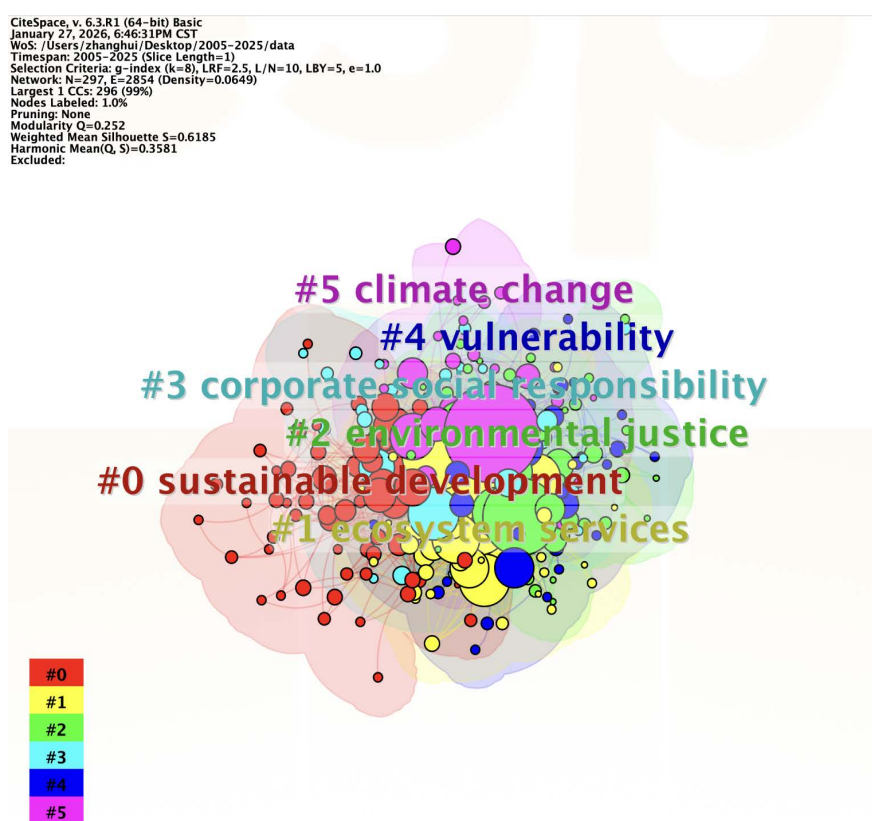


Figure 7. Visualization map of keywords clusters of environmental discourse (2005-2025).

The labels of clusters #0 and #2 are associated with “sustainable development” and “environmental justice”, which display that there are various philosophical frameworks that can be drawn on for an ecosophy, including “sustainable development” [35], “social ecology” [48] and “ecofeminism” [49]. Likewise, the ecological framework on which environmental discourse analysis is based, is actually a series of philosophical assumptions and valuable tendencies for the pursuit of eco-

logical harmony and balance [50], and it is very important for researchers to clearly express their ecological philosophy. Many important concepts in the field of the ecosophy, such as “self-realisation” [51], “ecological sustainability” [3] and “environmental justice” [52] [53], have been emphasized in environmental discourse. Hereafter, the emergence of a new policy-oriented discourse in environmental politics that could be labelled as “ecological modernization”, which has been recognized as the new dominant way of conceptualizing environmental problems, and the potential alternative for the policy-making by national governments and supra-national organizations [54]. As Hajer [55] notes, “the discursive power of ecological modernization manifests itself in the degree to which its implicit future scenarios permeate through the society and actors reconceptualize their interests and recognize new opportunities and new trouble spots.” The keyword clustering results show that the integration of philosophical frameworks such as ecosophy has become an important trend in environmental discourse research, which helps to improve the theoretical depth and value guidance of environmental discourse research.

6. Conclusions and Implications

This study employs the visualization software CiteSpace and VOSviewer to review environmental discourse collected from WoS core database, and this research has drawn important conclusions and provided aspirations for the way forward in this field.

Firstly, from the perspective of the number of publications, environmental discourse has received continuous attention from scholars in various disciplines, and different stages of development have demonstrated that environmental discourse has been attracting more attention and undergoing the rapid research progress.

Secondly, in terms of productive countries, USA plays the leading role, demonstrating its prolific and fruitful contributions to a wide range of scientific research results. Meanwhile, England, Australia, Canada, Germany, Netherlands and Sweden also account for a large proportion of academic achievements in this field.

Finally, language, as the superordinate concept of environmental discourse, assumes the role of a key element in the multi-disciplinary research of environmental discourse. Therefore, we contend that language studies which involve discourse and environmental issues are expected to proceed fruitfully from the linguistics level in combination with the perspective of environmental sub-disciplines, covering environmental politics, environmental sociology, environmental anthropology, environmental geography and environmental communication. Similarly, the analysis of environmental discourses also holds the potential to be adjusted to different analytical and methodological levels. These include sub-field of linguistics (ecolinguistics, cognitive linguistics and CDA) as well as some main approaches (framing analysis and metaphor analysis). Besides, the broad range of topics in environmental discourse requires a significant body of studies analyzing the destructive discourses, such as consumerism, advertising as well as intensive agri-

culture. However, environment-friendly discourses can promote the awareness that the language uses privileges certain perceptions and actions, which is one of the central insights of ecological thinking to language. Obviously, there is a growing need for this type of discourse embedded with various concepts for an eco-sophy, such as ecological sustainability and environmental justice, which show the positive side of developments and inspire optimism for the ecologically minded people.

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Notes on Contributors

Hui Zhang is studying for a Master's degree at Hebei University, China. Her research interests cover multimodal discourse analysis, environmental discourse and ecological linguistics.

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Author Contributions

All authors participated jointly in the conceptualization, methodology, and original draft preparation of the manuscript. Zhang Hui and Li Xiaohan were mainly responsible for data processing and the overall writing of the paper, and Ma Rui carried out manuscript checking and proofreading. All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflicts of interest.

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