



# A Bibliometric Study Analyzing Research Contributions And Patterns In Heritage Conservation

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## ARTICLE INFO

## ABSTRACT

Heritage conservation, often referred to as historic preservation or heritage preservation, is the process of safeguarding and maintaining objects, buildings, landscapes, and other artifacts that hold cultural, historical, or architectural importance. This encompasses a diverse array of both physical and non-physical cultural assets, including but not limited to, ancient structures, archaeological locations, monuments, artifacts, customs, and cultural environments. A bibliometric analysis was conducted to ascertain research tendencies and contributions in the field of Heritage Conservation. The study primarily investigated themes, authors, publications, and organizations. The Scopus database was employed to retrieve the data, resulting in the identification of 357 papers after applying filters. The five leading journals in the field of heritage conservation from 2003 to 2023 were "Sustainability Switzerland" (with 69 published articles), "Geoheritage" (with 55 published articles), "Journal of Sustainable Tourism" (with 13 published articles), "Geojournal of Tourism and Geosites" (with 10 published articles), and "Journal of Heritage Tourism" (with nine published articles). The most commonly used keywords in the analyzed papers were "Tourism," "Geotourism," "Conservation," "Heritage tourism," "Heritage," "Geoheritage," "Heritage Conservation," "Cultural Heritage," "sustainable development," "Sustainability," "Geoconservation," "Heritage Management," "Geopark," "Sustainable Tourism," "China," "Geosites," and "Tourism Development."

**Keywords:** Conservation, preservation, Bibliographic Analysis, Heritage, Mapping, Citations, Journal, Author.

## 1. Introduction

Cultural heritage conservation involves implementing strategies to prolong the lifespan of cultural heritage while enhancing the transmission of its important messages and values. Within the realm of cultural property, the objective of conservation is to preserve the physical and cultural attributes of the object, so safeguarding its worth and ensuring its longevity beyond our finite lifespan.

According to UNESCO, 'Heritage' refers to our inheritance from the past, our current possessions, and what we transmit to future generations. 'Cultural Heritage' is defined as the invaluable sources of life and inspiration, encompassing monuments like grand architectural works, monumental sculptures, and paintings, as well as archaeological structures, inscriptions, cave dwellings, and combinations of features. It also includes groups of buildings, whether connected or separate, and sites of exceptional historical, aesthetic, ethnological, or anthropological significance.

Heritage, whether it is a cultural or natural artifact or a constructed asset, consistently captivates travelers and inspires them to visit these specific locations in order to physically encounter it. It is widely noted that as a new kind of tourism emerges and advances, it not only creates numerous socio-economic prospects for the local population but also aids in the rebranding and repositioning of the destination. Dwyer, Forsyth & Spurr (2004) further affirm this perspective by stating that "heritage tourism exerts a beneficial influence on the local economy." Thus, by effectively managing both 'Heritage' and 'Tourism', the potential advantages of 'heritage tourism' can be fully realized, benefiting both the host community and the visitors at a specific location.

Heritage Management and Conservation is the ongoing and proactive process of properly maintaining and protecting heritage elements to prevent their destruction or improper restoration, by effective management, control, and appropriate approaches. According to Timothy & Nyaupane (2009), the field of cultural-heritage tourism is still relatively new, despite the increasing interest in it. They emphasize that this expertise is crucial for effectively managing and preserving heritage sites in developing nations.

Heritage conservation is the discipline focused on safeguarding cultural property for future generations (Munos-Vinas, 2005, p.13). The primary methodologies in heritage conservation that have emerged since the inception of the subject include a material-based approach, a values-based approach, and a living heritage approach. Although these approaches may have emerged at different points in time, they are all relevant and usable in the present day.

The present study employs a bibliometric methodology to examine the existing body of literature on heritage conservation. Bibliometrics is a method of evaluating and monitoring the progress of a specific field by organizing data from scientific publications that employ statistical methods. This data includes keywords, citations, affiliations, subjects covered, and procedures used (McBurney and Novak, 2002). One can readily gather data for bibliometric analysis from databases such as WoS, Scopus, and Google Scholar (Bartol and Mackiewicz, 2015). The bibliometric approach is essential in the tourism business (Hall, 2011). Many scholars in the field of tourism now favor the bibliometric method.

## 2. Bibliometric Analysis and Methods

Bibliometric research seeks to analyze the available empirical literature in order to determine the limits of knowledge and identify any areas where knowledge may be lacking (Fahimnia et al., 2015). Bibliometric analysis is widely acknowledged as a valuable approach for examining the attributes of research themes, authors, journals, organizations, and other entities. The data is categorized using quantitative methods and generates representative summaries (Li et al., 2020). Hence, the objective of the proposed study is to ascertain the many research patterns identified in the literature on "Heritage Conservation," as well as the progress, growth, and impact of authors, references, and countries in the context of "Heritage Conservation." The data was sourced from the publications listed in the Scopus database from 2003 to 2023. Minimizing the repetition of inaccurate data is crucial in order to mitigate errors that may arise throughout the process of collecting data for bibliometric analysis. In order to prevent the inclusion of redundant information, data retrieval was exclusively conducted using Scopus as the sole source. The terms "Heritage Conservation" and "Tourism" were inputted into the document search area. We utilized the Scopus database, renowned in the academic community, to compile extensive datasets and provide bibliometric indicator-based statistics. The search was performed within the category of "topic, title, abstract, keywords". A total of 734 items were identified in the Scopus database during the initial search, including articles, reviews, and editorial content. The initial pool of 734 papers was reduced to 377 documents by using the search criteria of the keywords "Heritage Conservation" OR "Heritage Tourism" OR "Cultural Tourism" OR "Conservation" OR "Heritage". Further enhancements to the text involved completing the last stage of publication, exclusively utilizing the English language, and eliminating any documents that did not qualify as articles. A total of 357 papers underwent evaluation using the VOS viewer program following the filtering procedure. Four parameters were examined in connection to the retrieved data:

- I. Yearly expansion of the publications.
- II. Countries with the highest contributions.
- III. Articles with the highest number of citations.
- IV. Journals with the highest contributions.

The project aimed to use data visualization to apply science mapping analysis for the purpose of creating data maps. The study aimed to utilize bibliometric maps to visually represent the structure and relationships between Authors, Journals, and Countries. The study examined the concurrent occurrence of author keywords, co-citation analysis, and bibliographic coupling. Author keywords are specific keywords that are located below the abstract. Co-citation analysis entails the act of referencing the same article in two distinct sources. Bibliographic coupling refers to the situation where two publications both cite the same third article. The selection of these analyses was based on their significant prevalence in bibliometric research.

### 2.1 Inclusion-Exclusion criteria:

A preliminary search was undertaken in the Scopus database from 2003 to 2023 for this analysis. A grand total of 734 publications that particularly pertain to Heritage Conservation were located and obtained. Papers that did not pertain to the fields of Business Management, Accounting, and Social Science were eliminated throughout the refining process. There were a total of 202 documents that were rejected, resulting in a final selection of 532 documents. Following further refinement, only articles were selected, while Book Chapters, conferences, review articles, and books were omitted, resulting in a total of 87 exclusions. As a result, we acquired a grand total of 445 articles. In addition, we retained the articles written in English and excluded pieces written in other languages, resulting in a total of 405 articles, excluding the 40 articles in other

languages. After additional filtering, only journal articles were kept, and any items from book series with a numerical value of 1 were removed. As a result, we have acquired 404 refined articles. In the end, the researcher acquired a total of 397 papers by extracting the articles from the final publication stage and removing the 10 publications that were still awaiting publication, as illustrated in Figure A. Applying additional keyword-based filtering resulted in a total of 357 documents.

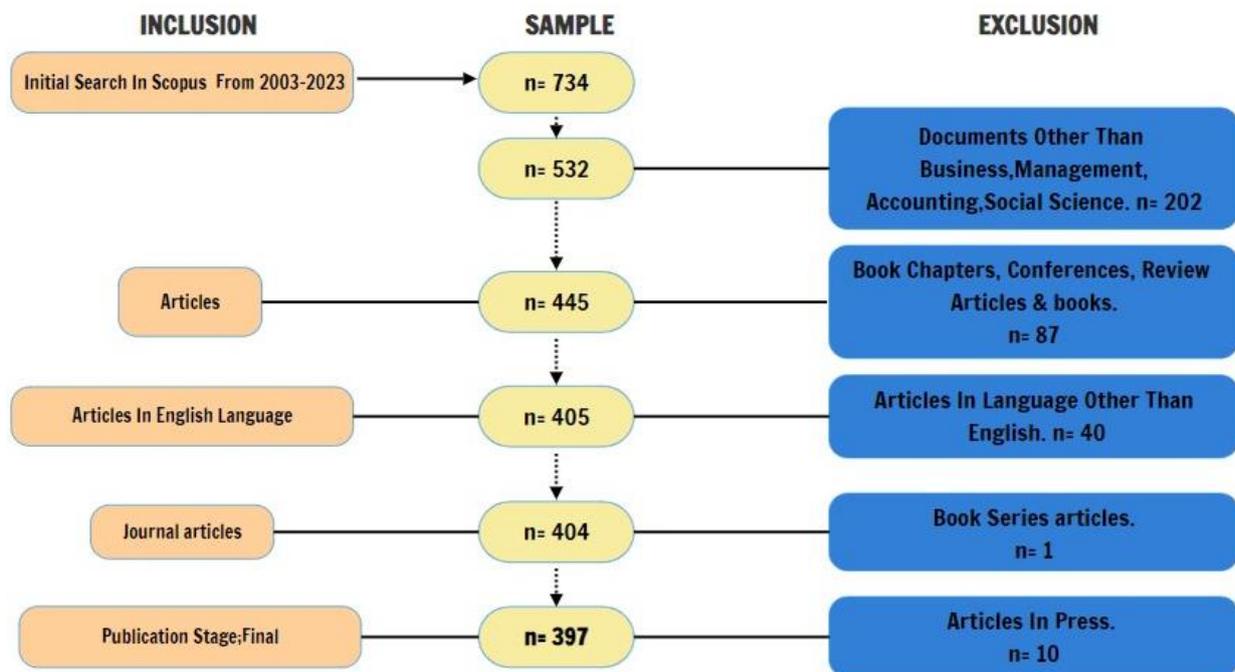


Figure A: Refinement of search results via Inclusion-Exclusion criteria

Source: Own Elaboration

### 3. Data Analysis and Results

#### 3.1. Descriptive Analysis

##### 3.1.1. Annual number of publications

From 2003 to 2011, only a few publications have been written on the topic of "Heritage Conservation." Figure 1 demonstrates that the number of publications had a progressive increase from 2008 to 2012, followed by a decline in 2013 and 2014. However, starting from 2014, there was a significant surge in the number of publications, with the year 2023 seeing the highest number of publications, totaling 45.



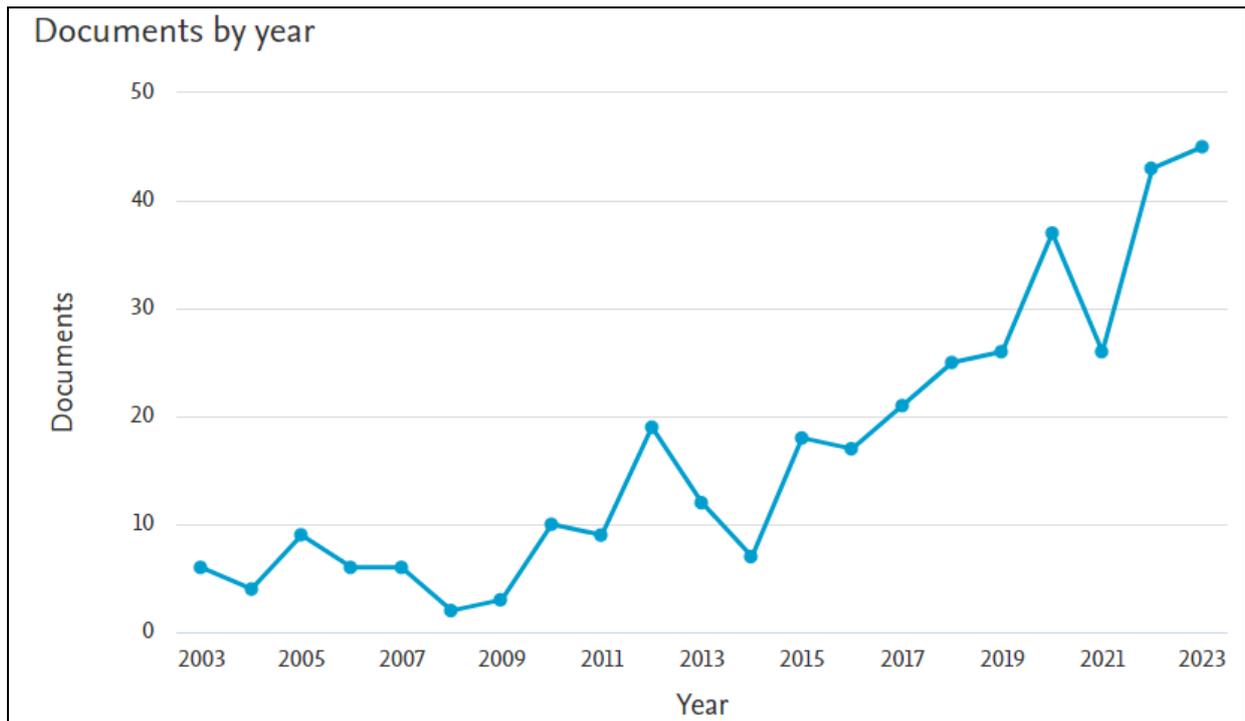


Figure 1: The Annual Number of Publications

Source: Scopus Database

**3.1.2. Most Contributing Countries (Top 10)**

Figure 2 displays the nations that have a minimum of ten articles. China is the leading nation in terms of contributions, with 54 articles, followed by the United States (32), the United Kingdom (31), Australia (27), Italy (26), Spain (23), Malaysia (16), India (12), Portugal (11), and Brazil (10). China's prominent position in terms of publication quantity is expected, considering that its heritage conservation regulations have been established for a considerable period of time.

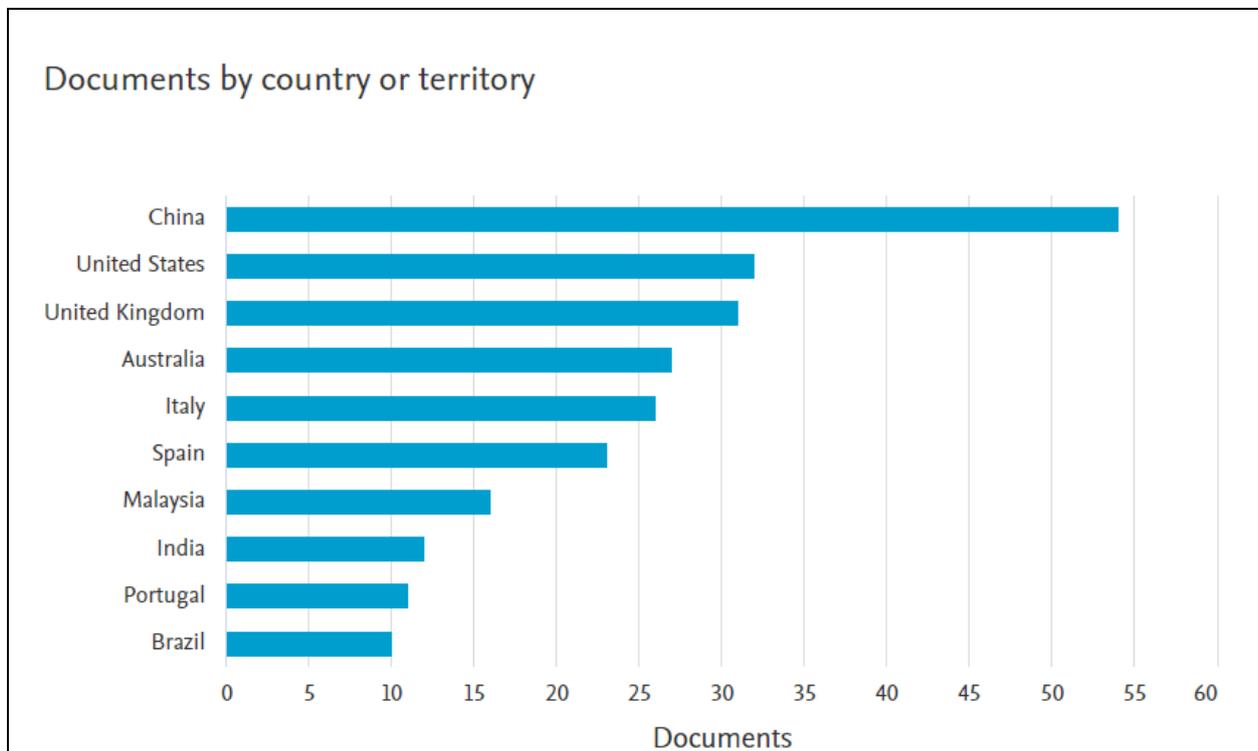


Figure 2: Most Productive Countries

Source: Scopus Database

**3.1.3 Top 5 Cited Articles**

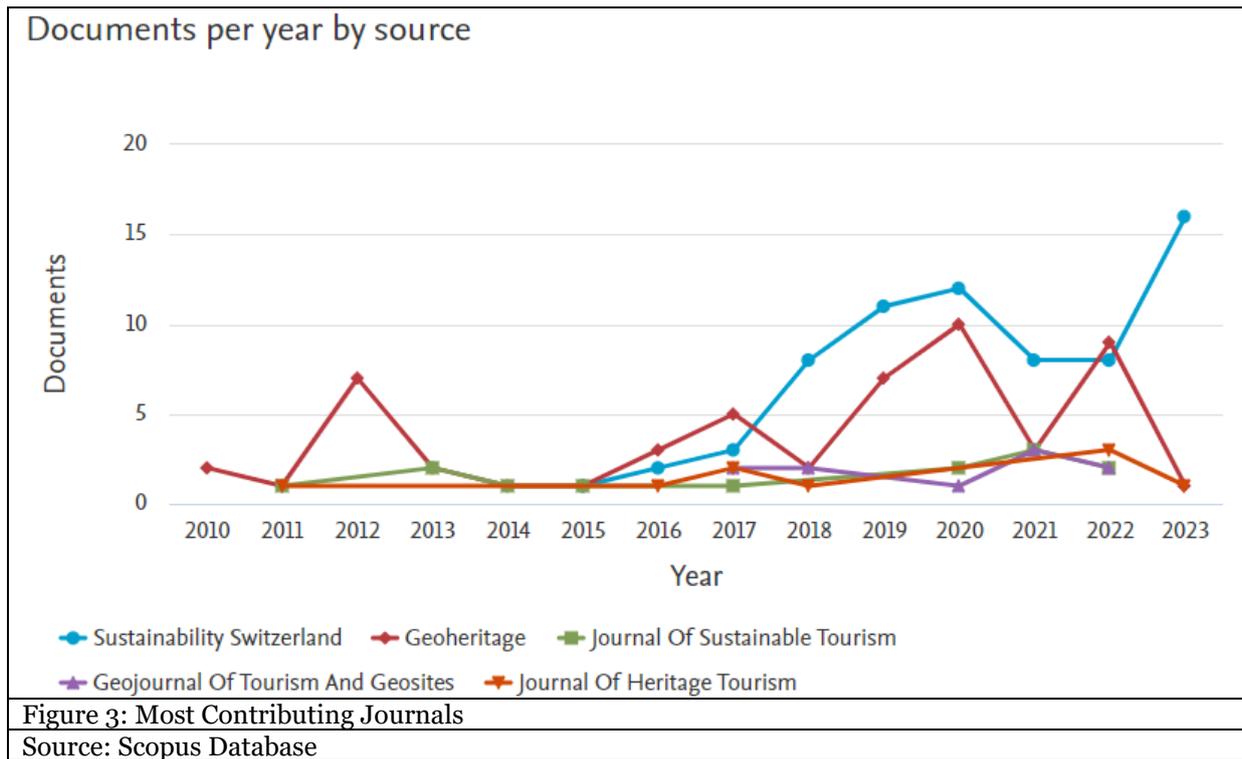
Table 1 displays the publications that have garnered the most number of citations as of 2023. The research titled "Virtual reality: Applications and implications for tourism" by Daniel A. Guttentag (2010) has the highest number of citations, totaling 882. The article was published in the academic journal "Tourism Management". The study examines the various uses of virtual reality (VR) in the tourism sector, including planning, marketing, entertainment, education, accessibility, and historical preservation. This statement emphasizes the need for further inquiry to fully understand the consequences and challenges of integrating virtual reality (VR) into the tourism business, as well as the potential benefits it offers to the sector. Aas et al (2005) is the article that has received the second-highest amount of citations, with a total of 542. This study examines the collaboration between stakeholders and their roles in the management of heritage and the promotion of tourism in Luang Prabang, Laos. The focus of the essay revolves around a collaborative effort between UNESCO and the Norwegian government, aimed at strengthening collaboration between the preservation of cultural assets and the tourism industry by including multiple stakeholders. The study analyzed multiple elements, such as communication strategies, revenue production, community participation, and the efficacy of collaboration. Poria et al., who authored the third most referenced paper with 257 citations, published their work in 2006. This study examines the manner in which tourists perceive a heritage site and their motivations for visiting, emphasizing the importance of understanding these factors for the site's management. Questionnaires were administered to a specifically chosen cohort of individuals prior to their visit to the cultural site. The findings highlight the significant influence of individuals' perspectives on shaping their expectations of the provided interpretation. The essay, authored by Thomas A. Hose in 2012, was published in the journal "Geoheritage" and received the fourth highest number of citations. The paper examines the limited participation of academic and scientific communities in the management and promotion of geosites/geomorphosites in geotourism. This text offers a comprehensive examination of the historical and theoretical underpinnings of geotourism, as well as many approaches to effectively managing it in a sustainable manner. The primary focal points in contemporary geotourism encompass geoconservation, geohistory, and geo-interpretation. This encompasses the creation of an enhanced geohistorical framework and a concise representation of the spatial arrangement and chronological order for geotourism. The essay authored by Noha Nasser in 2003 ranks as the sixth most often referenced publication in its respective academic discipline. This study investigates the conflicts that develop when attempting to reconcile the preservation of natural resources, historical significance, and the promotion of tourism in the management and structure of historical areas.

<b>Year</b>	<b>Author(s)</b>	<b>Citations</b>	<b>Journals</b>	<b>Title</b>
2010	Daniel A. Guttentag	882	Tourism Management	Virtual reality: Applications and implications for tourism
2005	Aas et al	542	Annals of Tourism Research	Stakeholder collaboration and heritage management
2006	Poria et al.	257	Annals of Tourism Research	Heritage site management: Motivations and Expectations
2012	ThomasA.Hose	243	Geoheritage	3G's for Modern Geotourism
2003	Noha Nasser	216	Journal of Planning Literature	Planning for Urban Heritage Places: Reconciling Conservation, Tourism, and Sustainable Development

It promotes a sustainable approach that gives priority to projects generated by community and culture. Being discerning in choosing which tourism activities to engage in can lead to only partially effective conservation efforts and the development of a lasting idea based on consumer preferences. The research emphasizes the significance of long-term strategic planning, protecting cultural heritage, embracing change, and ensuring equitable and inclusive access to heritage resources.

**3.1.4. Top 5 Contributing Journals**

Figure 3 displays the five most prominent publications that published articles on the preservation of cultural assets from 2003 to 2023. The publication "Sustainability Switzerland" has released a total of 69 articles, making it the most prolific. It is followed by "Geoheritage" with 55 articles, "Journal of Sustainable Tourism" with 13 articles, "Geojournal of Tourism and Geosites" with 10 pieces, and "Journal of Heritage Tourism" with 9 articles.

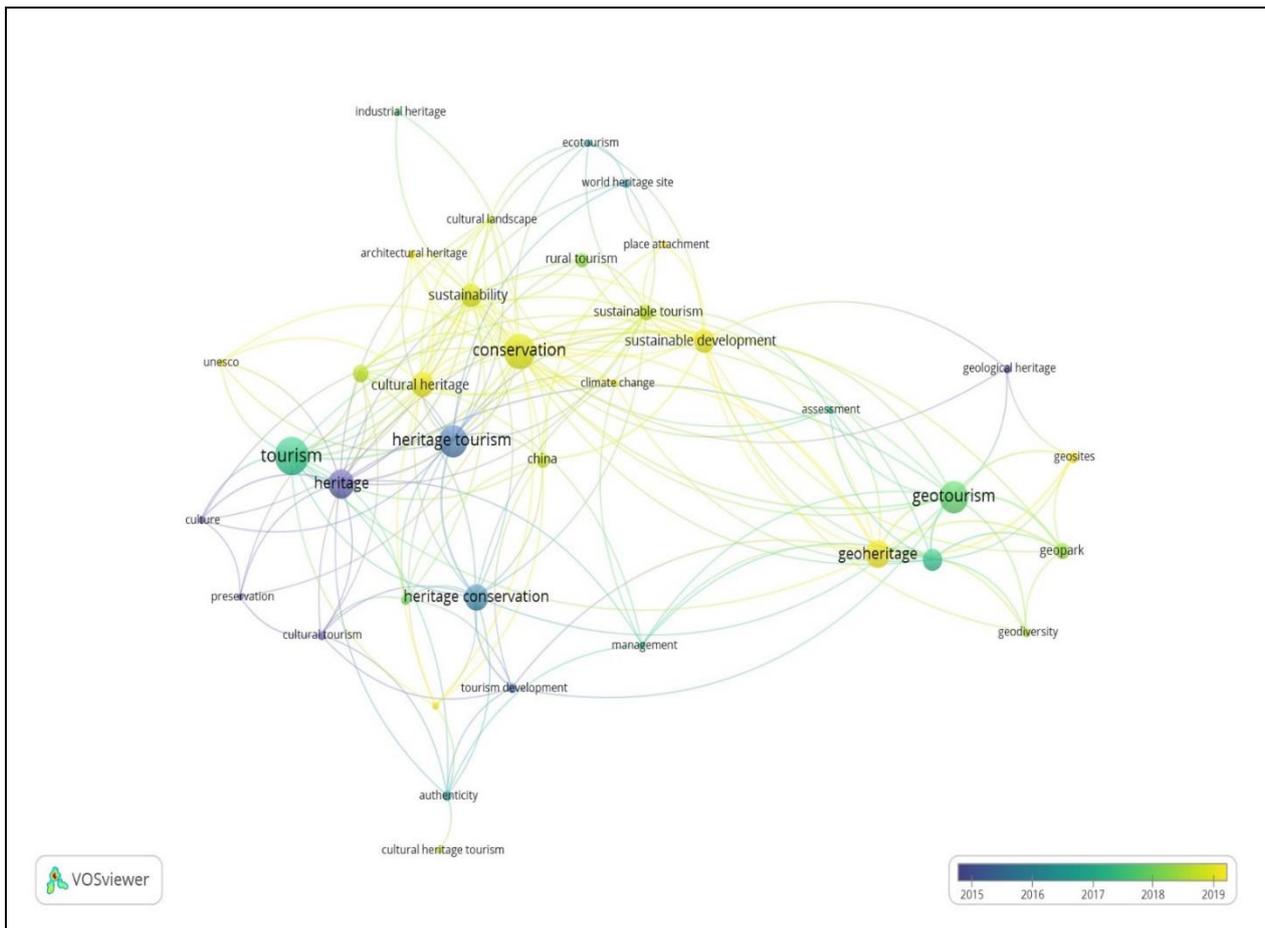


### 3.2. Heritage Conservation Science Mapping Analysis

#### 3.2.1. Most Often Used Keywords in Articles

The Co-occurrence function of the VOS viewer was utilized to examine each author term that met a minimum threshold of 5 occurrences.

The inquiry covered scholarly works that in total had 1202 author keywords. However, Figure 4 illustrates that only 37 of these words were repeated at least five times. The figure presents data on the frequency of certain keywords. The most frequently used keywords were "Tourism" (mentioned 41 times), "Geotourism" (mentioned 34 times), "Conservation" (mentioned 31 times), "Heritage tourism" (mentioned 33 times), "Heritage" (mentioned 30 times), "Geoheritage" (mentioned 27 times), "Heritage Conservation" (mentioned 26 times), "Cultural Heritage" (mentioned 23 times), "sustainable development" (mentioned 22 times), "Sustainability" (mentioned 22 times), "Geoconservation" (mentioned 19 times), "Heritage Management" (mentioned 14 times), "Geopark" (mentioned 13 times), "Sustainable Tourism" (mentioned 13 times), "China" (mentioned 11 times), "Geosites" (mentioned 9 times), "Tourism Development" (mentioned 7 times). The remaining keywords were used less than 6 times. Figure 4 depicts the chronological distribution of these keywords.



**Figure 4: Author Keyword Co-occurrence Map Density**

**3.2.2. Co-citation Analysis**

Co-citation analysis enables the identification of the most prominent journals and researchers in the subject, hence streamlining the procedure. Figure 5 illustrates the outcomes of the co-citation analysis for authors who have obtained at least 27 citations. Among the 23586 authors, only 45 satisfy the minimum criterion of having a minimum of 27 citations. The experiment produced two separate clusters, with each cluster matching to the colors red and green. Cluster 1, also known as the red cluster, contains a total of 25 things. On the other hand, Cluster 2, referred to as the green cluster, consists of 20 items. The authors who had the highest level of recognition were recognized as Reynard. Reynard had a total of 141 citations and was represented in the green cluster with a link strength of 2436. The wall received a total of 76 citations and was categorized inside the blue cluster, with a link strength of 920.

Figure 6 displays the journal co-citation map, which is created using 9724 sources. The map is shown from the perspective of these sources. Out of all the sources, only 28 satisfy the co-citation condition, which mandates a minimum of 30 citations. As a consequence of this analysis, four clusters were found. The red cluster comprises ten journals, with "Annals of Tourism" having 362 citations and a link strength of 4977. The journal "International Journal of Heritage" (green cluster) was one of seven journals in a group. The document garnered 141 citations and possessed a cumulative link strength of 1536. The blue cluster had a total of 6 journals, including the journal titled "Sustainability." The journal in question received 230 citations and has a link strength of 2695. The term "Geoheritage" was classified under the yellow cluster, which comprises six periodicals. The article accumulated a total of 428 citations and exhibited a link strength of 1655. These data suggest that the journals "Geoheritage" and "Annals of Tourism Research" have had a greater impact on the literature related to "Heritage Conservation".

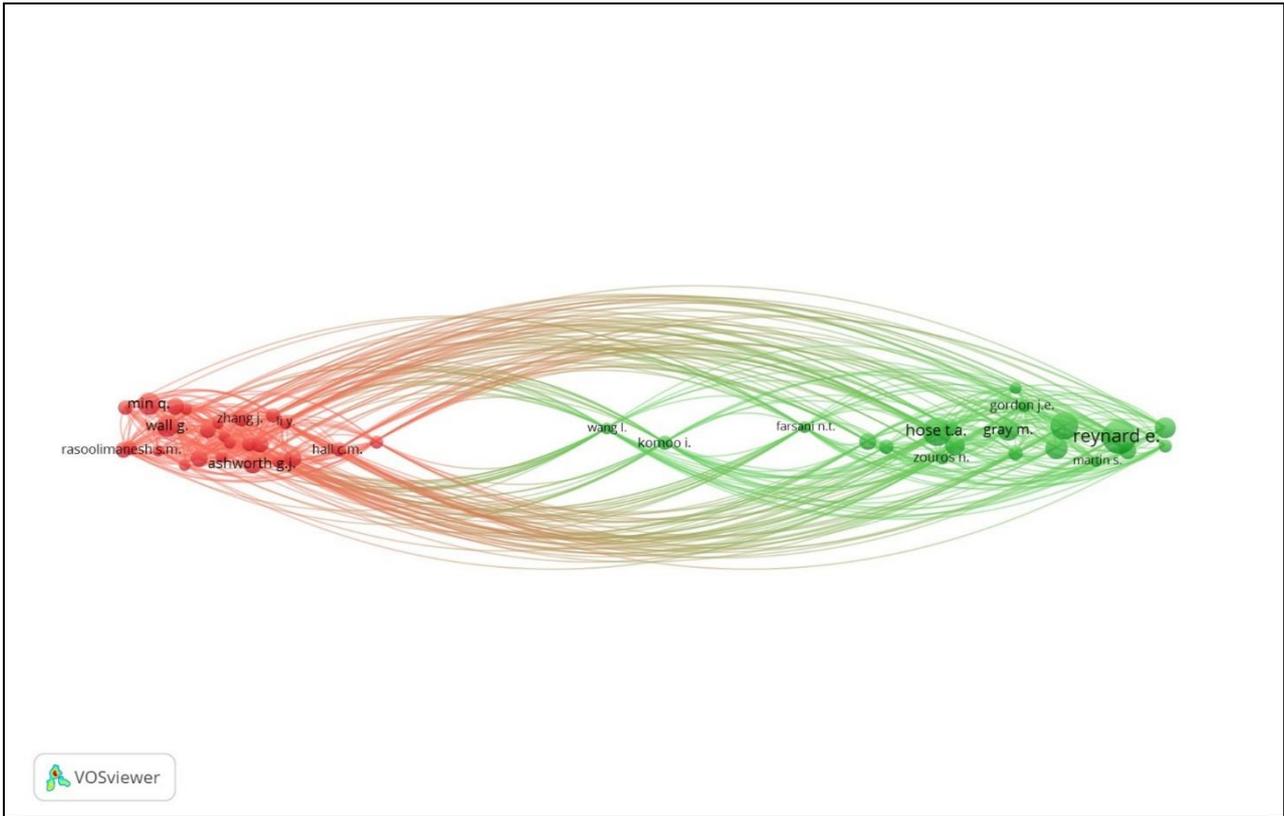


Figure 5: Co-citation Analysis For Author's

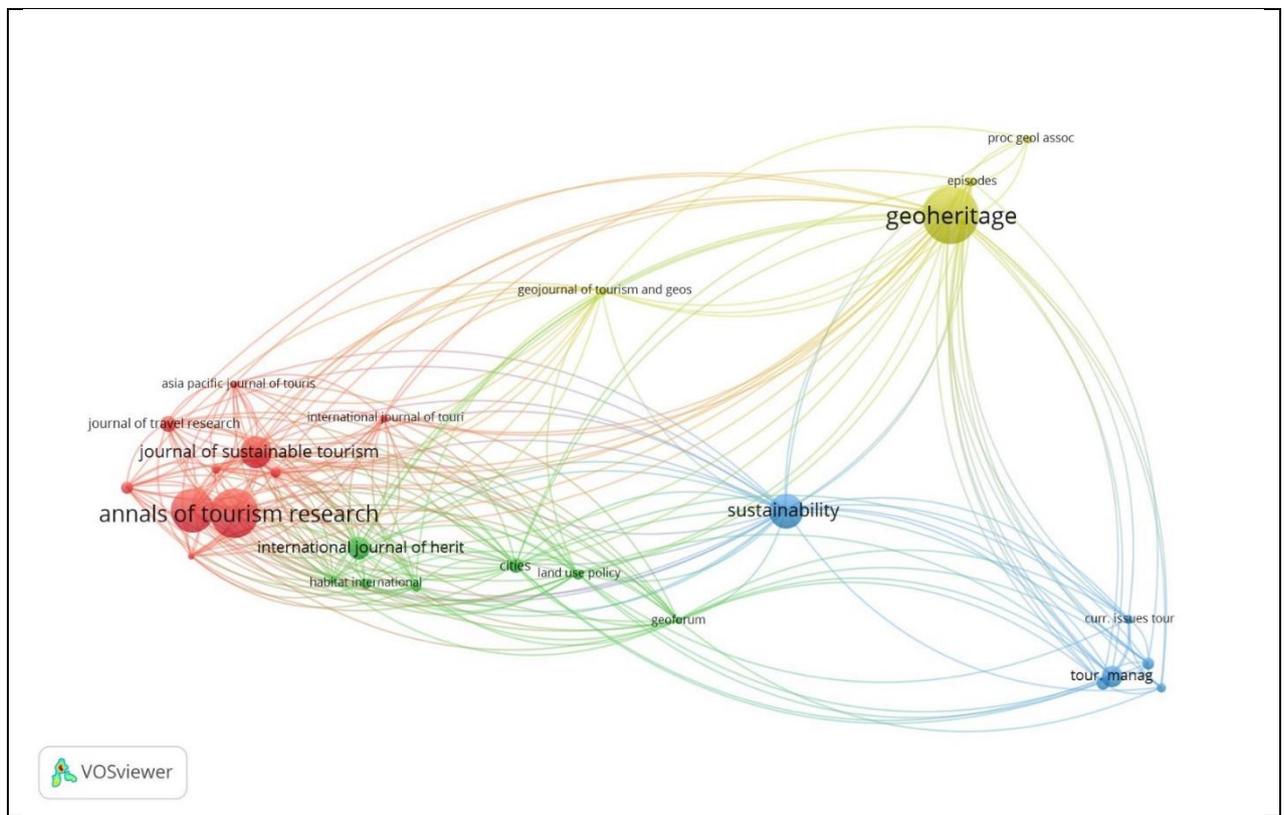


Figure 6: Source Co-citation Analysis

### 3.2.3 Bibliographic Coupling

Bibliographic coupling is used alongside co-citation analysis. It effectively communicates a distinct and original understanding of a subject or the relationship between authors. Figure 7 illustrates the connection between writers and bibliographic references in the field of Heritage Conservation. It notably highlights authors who have published at least two works and have obtained a minimum of 20 citations. Among the 911 authors, only

48 met the required criteria. Sun, Yehong is ranked first on the list, with a total link strength of 801 and 86 citations over 5 documents.

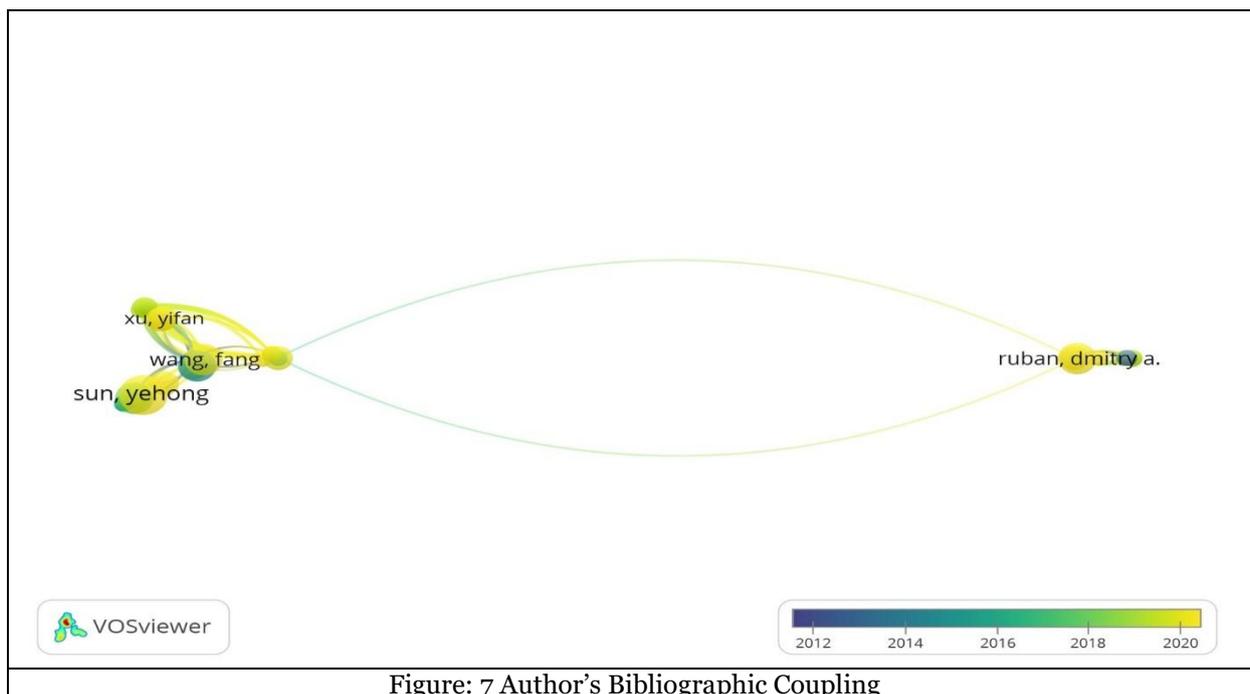


Figure: 7 Author's Bibliographic Coupling

Figure 8 illustrates the bibliographic connection between nations that have made contributions to the literature on "Heritage Conservation". This connection is determined using a threshold of 3 publications and a minimum of 90 citations. Only 22 out of the 79 countries managed to fulfill the specified criteria. China possesses the most extensive network depicted on the map, comprising 54 elements with a connection strength of 2725. According to the literature on "Heritage Conservation," it is regarded as the most influential nation. Regarding the field of "Heritage Conservation," the United States and the United Kingdom are prominently included in the literature. Spain is the focus of 32 publications, while Australia is the subject of 31. Hence, the findings are consistent with the ones illustrated in Figure 2.

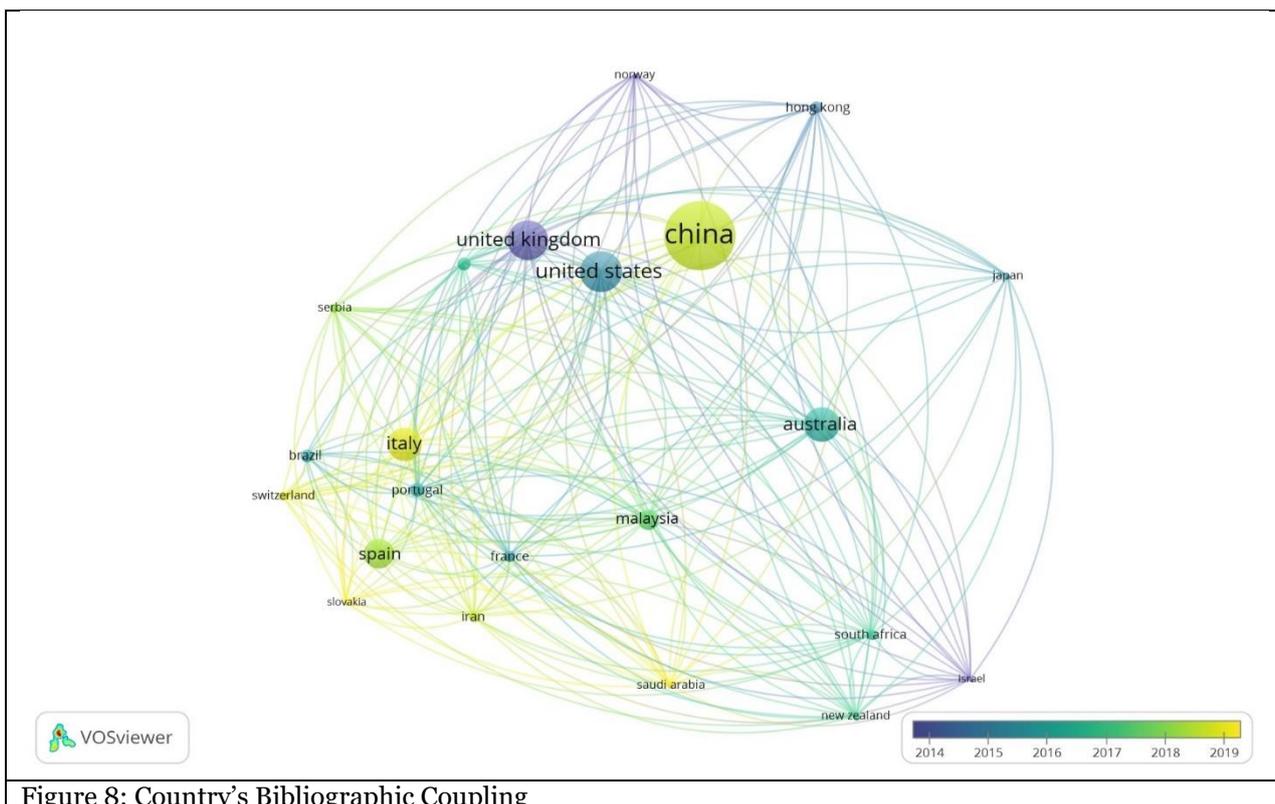


Figure 8: Country's Bibliographic Coupling

#### 4. Conclusion

This study employed bibliometric analysis to offer a systematic review and evaluation of the research articles on Heritage Conservation that have been published in the Scopus database from 2003 to 2023. This study utilized VOSviewer software to examine and assess a total of 357 articles. Our bibliometric research on Heritage Conservation revealed a surge in interest in the area starting about 2014, with 2023 emerging as the year with the highest number of publications. In terms of geographical distribution, China ranks first with 54 publications, followed by the United States and United Kingdom in second and third place, with 32 and 31 publications, respectively.

Daniel A. Guttentag's paper published in the journal "Tourism Management" in 2010 has acquired the most number of citations, totaling 882 as of 2023. The results also indicated that a significant proportion of highly cited research was published in other journals as well. In their study, Daniel A. Guttentag (2010) explores the different applications of virtual reality (VR) in the tourism industry, such as planning, marketing, entertainment, education, accessibility, and historical preservation. This research serves as a foundation for future investigations on heritage conservation, both in terms of theoretical concepts and practical evidence. This remark highlights the necessity of conducting additional research in order to comprehensively comprehend the repercussions and difficulties associated with incorporating virtual reality (VR) into the tourism industry, as well as the potential advantages it presents to the sector. The objective of the keyword analysis is to ascertain the most frequently utilized terms in the study description. The prevalence of certain terms in studies provides a clue that heritage conservation is undeniably connected to the preservation of cultural assets.

The most frequently used keywords were "Tourism" (41), "Geotourism" (34), "Conservation" (31), "Heritage Tourism" (33), "Heritage" (30), "Geoheritage" (27), "Heritage Conservation" (26), "Cultural Heritage" (23), "Sustainable Development" (22), "Sustainability" (22), "Geoconservation" (19), "Heritage Management" (14), "Geopark" (13), and "Sustainable Tourism" (13).

The mapping proved to be beneficial in identifying the authors and journals that had the most significant impact on heritage conservation during the co-citation analysis of the documents and sources. The co-citation analysis revealed a significant association between the "most cited articles" and "top contributing journals," which are two important characteristics of the study.

The article also examined the bibliographic connection between authors and countries. Bibliographic coupling is advantageous since it allows researchers to identify prior studies that are linked to their own.

The study offers valuable insights into the research trends, prominent journals, and often employed keywords within the domain of Heritage Conservation. It sheds light on the current knowledge and identifies promising areas that have not been well addressed in the existing literature. Nevertheless, it seems that our conclusions from this investigation require additional expansion. Consider augmenting the quantity of keywords and expanding the range of characteristics, such as incorporating contributions from organizations. Additionally, science mapping can be employed to do co-authorship analysis of nations, organizations, and researchers.

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