FORUM GEOGRAFI
ISSN: 0852-0682 | E-ISSN: 2460-3945

HTTPS://JOURNALS.UMS.AC.ID/INDEX.PHP/FG/

Review article

Mapping Traditional Village Cultural Landscape Research: A Systematic Bibliometric Analysis

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Citation:
Zhang, C., & Marzbali, M. H. (2024). Mapping Traditional Village Cultural Landscape Research: A Systematic Bibliometric Analysis. Forum Geografi. 38(3), 379-394.

Article history:
Received: 11 September 2024
Revised: 12 December 2024
Accepted: 15 December 2024
Published: 19 December 2024

Abstract

Traditional villages epitomise the rural cultural heritage, embodying historical, cultural, scientific, artistic, economic and social significance, and are worthy of preservation efforts. This study conducts a systematic bibliometric analysis to understand the knowledge structure, prevailing themes, and emerging research paths within the realm of traditional village cultural landscapes (TVCL) from 1992 to 2023. Drawing upon data from the Web of Science (WoS) Core Collection, we meticulously examined 830 articles and conference papers, employing VOSviewer and Citespace for comprehensive analysis. Our findings reveal a discernible upward trajectory in TVCL research and delineate three key components. Firstly, while countries like China and EU member states dominate TVCL-related scholarly output, an expanding cohort of nations is demonstrating burgeoning interest and influence in the field. Secondly, there exists a pervasive acknowledgement of the value and imperative of conserving TVCLs. Thirdly, recent efforts towards revitalising TVCLs have primarily centred on cultural, historical, and ecological dimensions, with a burgeoning exploration of sustainable local tourism pathways emerging as a pivotal trend for future development. By systematically scrutinising over three decades of publications, this study enriches our understanding of TVCL research and offers key insights to inspire future exploration in this evolving field.

Keywords: Traditional village cultural landscape; Bibliometric analysis; VOSviewer; Visual analysis; Citespace.

1. Introduction

The persistence of poverty and the decline of rural areas pose significant challenges to global sustainable development (Xu *et al.,* 2023; M. Yang *et al.,* 2024). Many such villages face decline or extinction (Ngo & Anh, 2021). Alarmingly, between 2000 and 2010, approximately 900,000 traditional villages in China vanished, averaging 100 per day (Zicai, 2012). Traditional villages represent the epitome of rural cultural heritage (Zhu *et al.,* 2023), embodying historical, cultural, scientific, artistic, economic, and social significance warranting preservation efforts (Meng, 2022; Y. Zhou *et al.,* 2024).

Recognising the relationship between nature and culture, the United Nations Educational, Scientific and Cultural Organisation (UNESCO) designates regions showcasing a remarkable nexus of these elements as World Cultural Landscapes (Rahmi & Setiawan, 2020). As a carrier of regional characteristics and historical legacies, cultural landscapes within traditional villages encompass a myriad of traditional practices, both tangible and non-tangible, integral to historical landscapes (Ahamdouch, 2023; Tieskens *et al.,* 2017). UNESCO plays a pivotal role in safeguarding traditional villages by instituting regulations and advocating for the sustainable utilisation of these natural and cultural treasures (Neumann *et al.,* 2018).

A wealth of research underscores the sustainable development of traditional villages. Micro-level approaches, such as integrating natural and spatial features with GIS and digitisation, offer new avenues for conserving cultural landscapes (Colucci *et al.,* 2024; Qi *et al.,* 2022). At the macro level, TVCLs are examined within political, economic, and cultural contexts (S. Guo, 2023; Katelieva & Muhar, 2022; Purnomo *et al.,* 2022). Scholars explore innovative theories and methodologies to bolster rural heritage preservation (Ekici *et al.,* 2024; Q. Yang, 2023). However, challenges persist, including limited practice, case studies, and practical guidance (Auclair & Fairclough, 2015; Schaal-Lagodzinski *et al.,* 2024), necessitating a deeper understanding of current research and future directions. Yet, there remains a gap in systematically visualising and analysing the present and future of TVCL research.

This study aims to address this gap by offering a comprehensive and systematic review of TVCL from 1992 to 2023, employing a knowledge graph approach. Leveraging data from the Web of Science (WoS) core collection, we utilise co-authorship analysis, co-citation analysis, co-occurrence analysis of keywords, and high-frequency keyword citation burst analysis to elucidate the knowledge structure, research hotspots, and trends. Utilising VOSviewer and Citespace, widely regarded as leading visualisation tools, we present insights into TVCL research dynamics.

2. Research Methods

2.1. Data collection

The WoS database serves as the primary data source, being the first database to track the quality of journals and compile significant scientific literature since 1900, encompassing over 159 million publications (Liu & Pan, 2023; Öner & Orbay, 2022). Compared to other databases, it has a comprehensive reference library, indexing, and a network of researchers (Y. Huang *et al.,* 2024).

As shown in Table 1, since the earliest TVCL-related papers in the WoS database date back to 1992, we limited the publication timeframe of our study from 1992 to 2023. With this selection, we obtained 986 journals in the WOS Core Collection database. By limiting the articles to English, the number of journals obtained was 870 articles. After manual filtering to exclude book reviews and 40 articles on irrelevant topics, we finally obtained 830 relevant articles for visualisation and analysis.

Table 1. Keywords Search Information.

Criteria	Contain
Database	WoS Core Collection
Core Search Terms	Topic (traditional or ancient) and (rural or village) and (cultural landscape)
language	English
Document types	Article and Proceeding Paper
Timespan	1992-2023

Source: WoS search information on 27 December 2023.

2.2. Research instruments

This study utilised CiteSpace 6.2.R2, a bibliometric tool developed by Professor Chao-Mei Chen, and VOSviewer 1.6.20, developed by the Centre for Science and Technology Studies (CWTS) at Leiden University in the Netherlands.

2.2.1. VOSviewer introduction

VOSviewer facilitates the construction of visual representations of various scholarly relationships, including author connections, citations, co-occurrences, bibliographic couplings, and co-citation links (Guan & Huang, 2023).These relationships can encompass publications, authors, institutions, countries, or terms, with each map focusing on a single type of item. Links between items denote connections or relationships, such as co-authorship links between countries, co-citation links between references, and co-occurrence links between keywords (Jan van Eck & Waltman, 2022).

2.2.2. Citespace introduction

Citespace is a practical knowledge-mapping tool based on multivariate dynamic citation analysis and pathfinding network algorithms, which are often used to measure and analyse data in the scientific research literature (Wu *et al.,* 2022). It is also known for its clear diagrams, diverse classifications, and user-friendly analysis interface (Yuan, 2024). Co-citation analysis theory, pathfinding network algorithms, and minimum spanning tree algorithms help scrutinise specific literature, checking metrics such as authors, organisations, and keywords (Cui *et al.,* 2023).

2.3. Data analysis

In this study, the collected literature was analysed using bibliometric methods for scientific collaboration, including national and regional collaboration, reference analysis, and clustering analysis (Figure 1).

2.3.1. Co-authorship analysis of countries/regions and authors

Scientific cooperation among authors from different countries can help to solve complex problems and enhance academic collaboration. Co-authorship analysis can reveal patterns of cooperation among different regions and authors (Jiang *et al.,* 2019). In collaborative network diagrams, co-authors often form a cluster.

This analysis explores the geographical distribution and collaborations in TVCL to understand research activities and collaborative networks in different regions.

2.3.2. Co-citation analysis of references

Co-citation refers to the frequency at which two references are cited in a separate article simultaneously (Small, 1973).This study presents co-cited visual references to analyse the most influential articles and clusters.

2.3.3. Co-occurrence analysis of keywords and clusters

Keyword and cluster co-occurrence analyses were performed to understand current research directions, and keyword citation burst analyses were performed to identify emerging trends in TVCL-related areas.

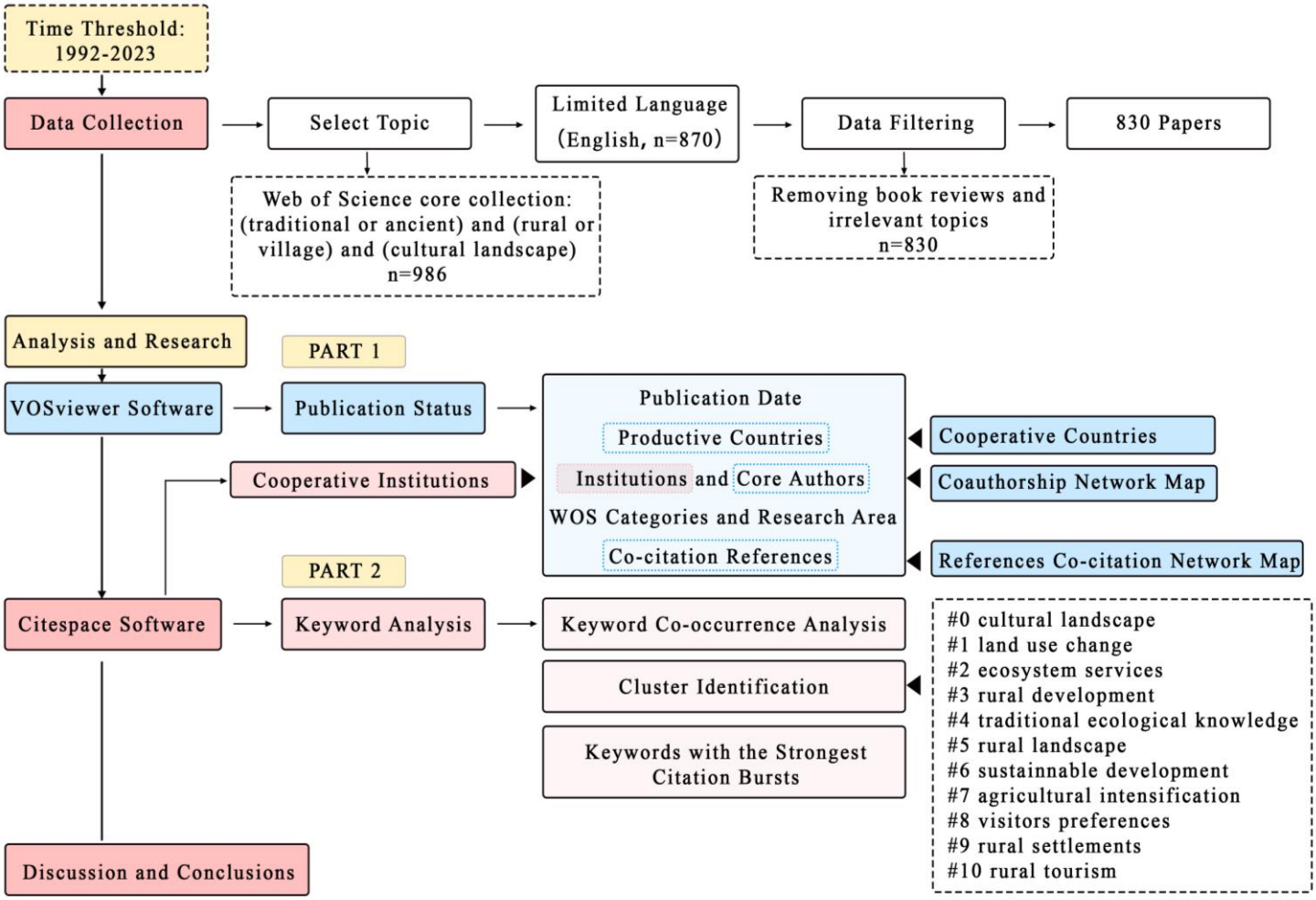

Figure 1. Outline of the TVCL Bibliometric Analysis Research Design.

3. Results

3.1. Fundamental features analysis of publications

3.1.1. Publication date

As shown in Figure 2, the number of research papers related to TVCL shows an overall upward trend, with a peak in 2022, which is a staggering 100-fold increase compared to 1992. 2019 is the first surge in the time of publication of TVCL-related literature and research. Therefore, this study delves into the changes in the number of articles published from 2017 to 2023 in the top five countries (Table 2). Surprisingly, since 2019, China has risen from second to first place in the number of articles published, remaining in first place for the fifth consecutive year. Notably, China published as many as 38 articles in 2022, marking the highest production in the past seven years. Coincidentally, during this period, the Central Committee of the Communist Party of China and the State Council released the Strategic Plan for Rural Revitalization (2018-2022), aligning with the peak years of published article discoveries. This underscores the significant influence of national policy support on developing traditional villages and highlights China's substantial impact on global TVCL research.

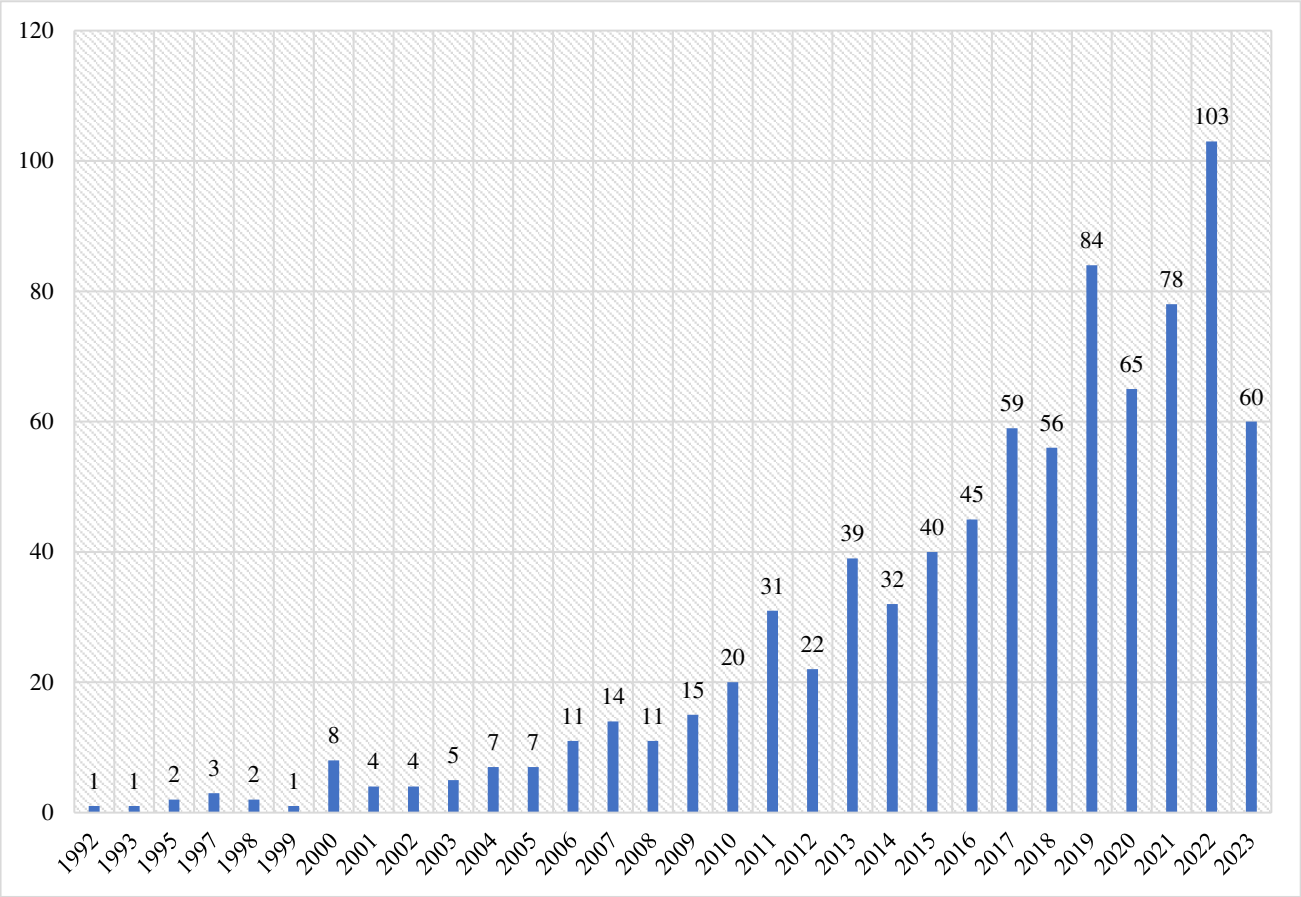

Figure 2. Year-Wise Publications in TVCL Research.

Table 1. 2017-2023 Top 5 Countries in Terms of Number of Publications.

Top	First		Second		Third		Fourth		Fifth	
Years	Country	Publication	Country	Publication	Country	Publication	Country	Publica-tion	Country	Publi-cation
2023	China	24	Spain	15	Italy	8	USA	5	Germany	5
2022	China	38	Italy	11	Spain	11	USA	7	Germany	4
2021	China	20	Italy	13	Spain	13	USA	8	Poland	7
2020	China	13	Italy	10	USA	10	Poland	9	England	8
2019	China	20	Italy	14	USA	7	Poland	7	Germany	6
2018	Italy	12	China	8	Spain	8	USA	3	India	3
2017	Italy	14	China	10	USA	5	Germany	4	Japan	4

3.1.2. Distribution of publications across countries

Figure 3 illustrates the distribution of publications across different countries from 1992 to 2023. There has been a growing global interest in TVCLs, notably observed in China and Italy, with China surpassing the USA in terms of publication output. This disparity underscores the gravity of traditional villages' challenges, such as hollow villages in Chinese rural areas (Z. Huang *et al.,* 2024; F. Wang *et al.,* 2024). Meanwhile, Italy's "remote inland areas" grapple with economic decline and underdeveloped public services (Alhajj Ali *et al.,* 2024; Annunziata *et al.,* 2024; De Toni *et al.,* 2021), while Spain contends with rural population decline and youth emigration (Álvarez-Montoya & Ruiz-Ballesteros, 2024; Martínez-Carrasco Pleite & Colino Sueiras, 2024). Remarkably, most of the top 25 countries are EU member states, indicating the European Union's heightened attention to TVCLs.

To delve deeper into the inter-country collaborations in TVCL research, we employed VOSviewer 1.6.20 to generate a co-author network map encompassing study countries from 1992 to 2023 (Figure 3). Each country or region is depicted by a node circle, the size of which indicates the level of collaboration. As collaboration intensifies, the size of the node circle expands accordingly. Out of the 93 countries included in our analysis, 49 met the threshold requirement when we set the threshold to 3.

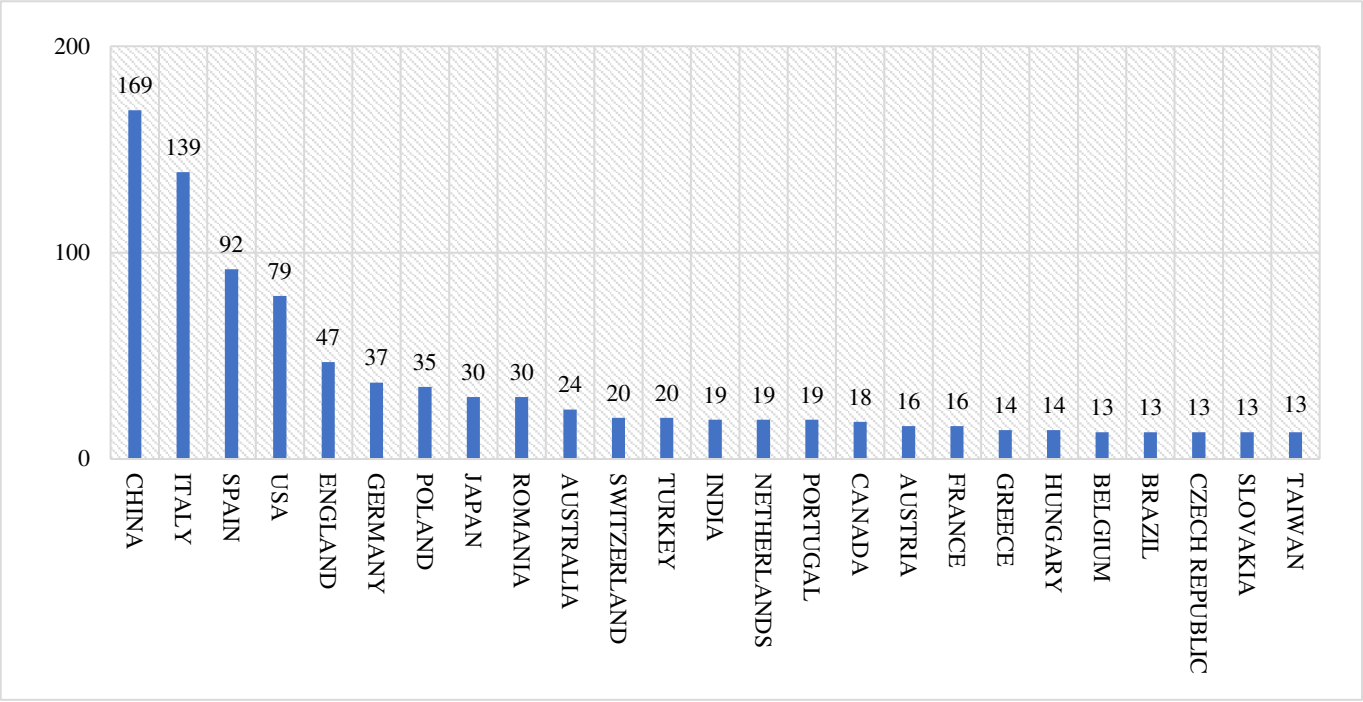

Figure 3. Top 25 Most Productive Countries with TVCL-Related Publications.

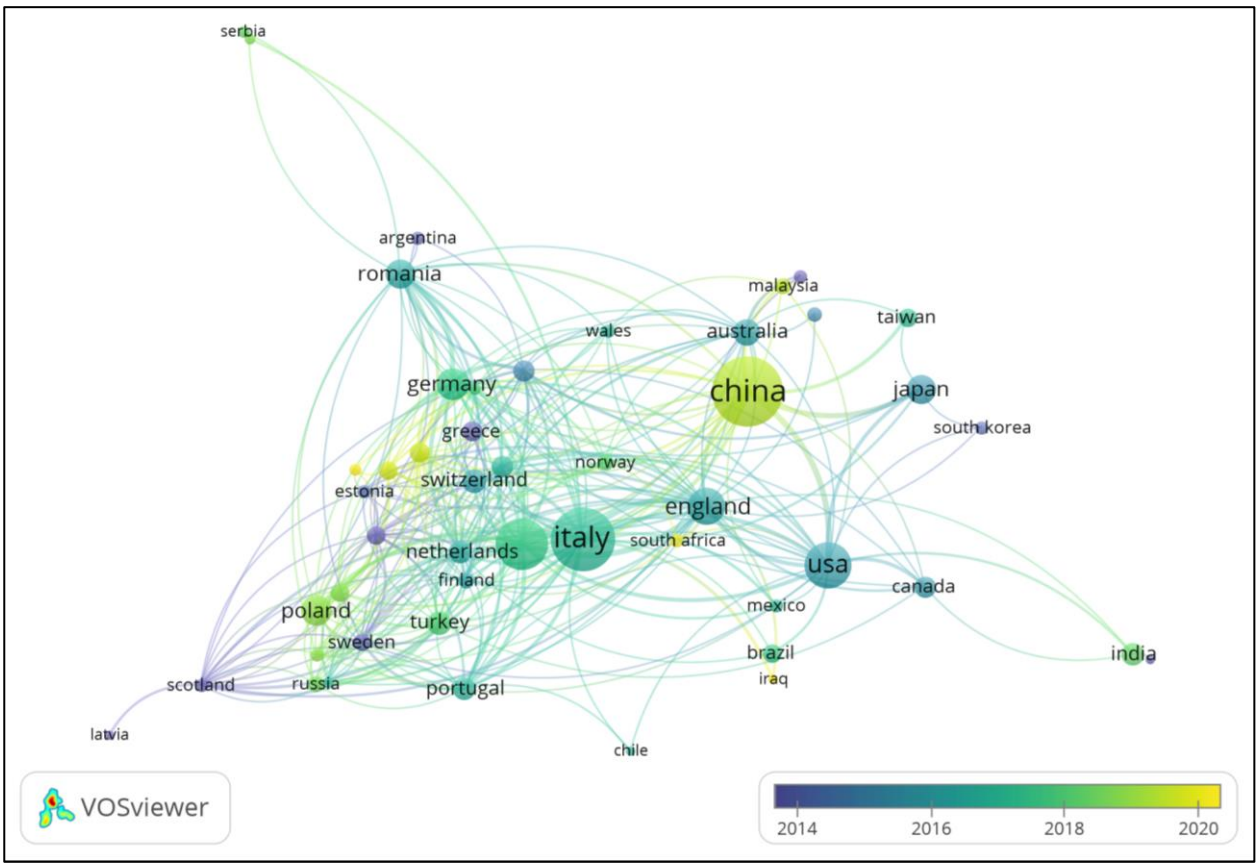

Figure 4. Knowledge Map of Cooperative Countries.

Figure 4 clearly illustrates four points. The first point is that the thickness of the connecting lines between countries or regions reflects the extent of collaboration, with thicker lines denoting closer collaboration. China and Italy possess the most significant nodes, indicating a high collaborative activity level. The second point is that geographical proximity influences collaboration among researchers from different countries (Feng & Cui, 2021). Figure 4 highlights the close cooperation between China, Taiwan, and Japan; Italy and Spain; and Canada and the United States. The third point reveals the strengthening of ties between geographically distant countries such as China, the United States, and India. These observations underscore the significant momentum generated by

increasing international conferences and the presence of overseas visiting scholars in TVCL-related research, fostering international cooperation. The fourth point is that Figure 4 depicts the timeline of national research on TVCL. A deeper shade of yellow indicates that research on the topic has commenced more recently, suggesting the emergence of new hot topics in recent years. Notably, TVCL has emerged as a new hot topic in countries such as Iran, the Czech Republic, Hungary, Malaysia, South Africa, and China.

3.1.3. Research institutions and core authors

Tables 3 and 4 provide data from the Web of Science, with Table 3 listing research institutions that have published ten or more papers, and Table 4 listing the institutions and countries of authors who have published multiple papers. Analysis of these data reveals that the majority of sources come from EU member countries and China, indicating a high level of interest in TVCL research in these regions. Additionally, Figure 5, generated using citation space with a threshold set to 5, illustrates institutional collaborations, while Figure 6 depicts the network of authors' major co-authorships. In Figure 6, each colour represents a cluster, a node represents an author, and each line represents a collaboration between authors. It can be observed that the blue, red, and yellow clusters are closely linked, and their author countries are all from European countries, and it shows that European countries have strong author links in the field of TVCL research. Geographic proximity is an important factor in co-published literature (Guan & Huang, 2023; Ponds *et al.,* 2007). These figures collectively suggest robust collaboration among institutions and authors within countries, albeit with limited collaboration and regional linkages.

The comprehensive overview provided by Tables 3 and 4, alongside Figures 5 and 6, underscores the significant attention and enthusiasm for TVCLs observed in China and the European Union. The literature suggests that this heightened interest stems from the centuries-long transformation and varying degrees of degradation experienced by rural areas in both regions, transitioning from productivism to post-productivism. Consequently, the rich rural cultural heritage produced in these regions is at risk of disappearing (Ekici *et al.,* 2024; Mu & Aimar, 2022).

Table 3. Institutions with Ten or More Publications.

Institutions	Record Count	% of 830	Country
University of Florence	18	2.169	Italy
Chinese Academy of Sciences	17	2.048	China
Complutense University of Madrid	14	1.687	Spain
Autonomous University of Barcelona	13	1.566	Spain
Autonomous University of Madrid	13	1.566	Spain
University of Basilicata	11	1.325	Italy
Institute of Geographic Sciences Natural Resources Research Cas	10	1.205	China
Swiss Federal Institute for Forest Snow Landscape Research	10	1.205	Switzerland
Swiss Federal Institutes of Technology Domain	10	1.205	Switzerland

Table 4. Most Productive Authors in TVCL-Related Research.

Authors	Publications	Institution	Countries
Schmitz MF	13	Universidad Complutense de Madrid	Spain
Hartel T	11	Babeș-Bolyai University Cluj-Napoca	Romania
Agnoletti M	10	University of Florence School of Agriculture	Italy
Santoro A	9	University of Florence	Italy
Pineda FD	8	Complutense University of Madrid	Spain
Arnaiz-schmitz C	7	Complutense University of Madrid	Spain
Antrop M	6	Ghent University	Belgium
Piras F	6	University of Florence	Italy
Spulerová J	6	Institute of Landscape Ecology SAS	Slovakia
Fischer J	5	Leuphana Universität Lüneburg	Germany
Min QW	5	Chinese Academy of Sciences	China
Picuno P	5	University of Basilicata	Italy
Plieninger T	5	Universitat Kassel	Germany

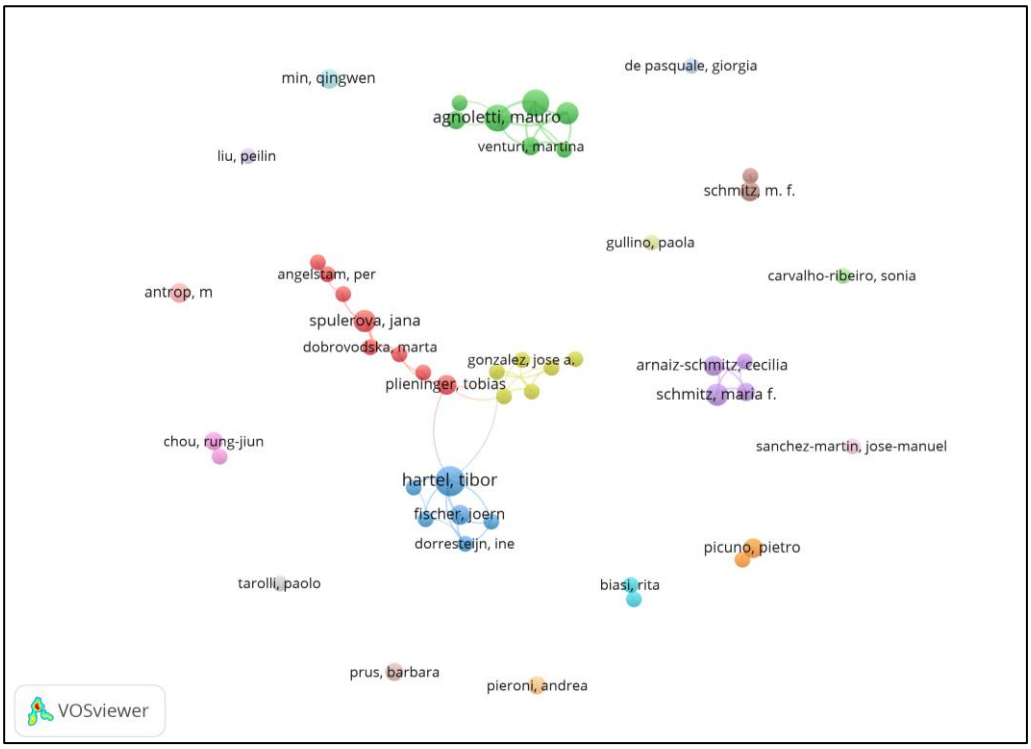

Figure 5. Knowledge Map of Cooperative Institutions.

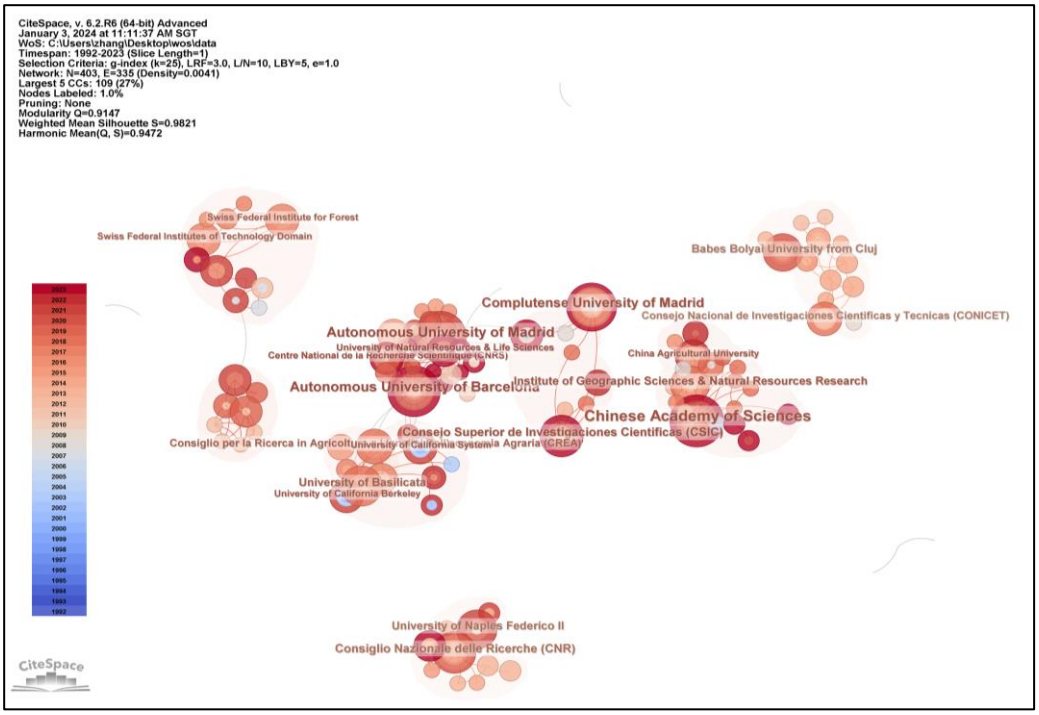

Figure 6. Author Major Coauthorship Network Map.

3.2. Intellectual structure analysis of TVCL research field

3.2.1. WOS categories and research area

This article analyses the current research status of TVCL from the aspects of subject categories and research areas. From 1992 to 2023, the current research on traditional TVCL covers 116 categories and 78 research areas. The top ten research categories are presented in Figure 7, and the top ten research areas are presented in Figure 8, which shows that the research on TVCL tends to be mostly in the areas of environmental research, scientific research, biodiversity conservation (Agnoletti, 2014; Chen *et al.,* 2024; Indratno *et al.,* 2024), architectural and engineering research, and so on. The most prominent research area in Figure 8 is "social sciences", which includes many disciplines, including economics, management, anthropology and communication. This shows that the research related to TVCLs shows a trend of multidisciplinary integration.

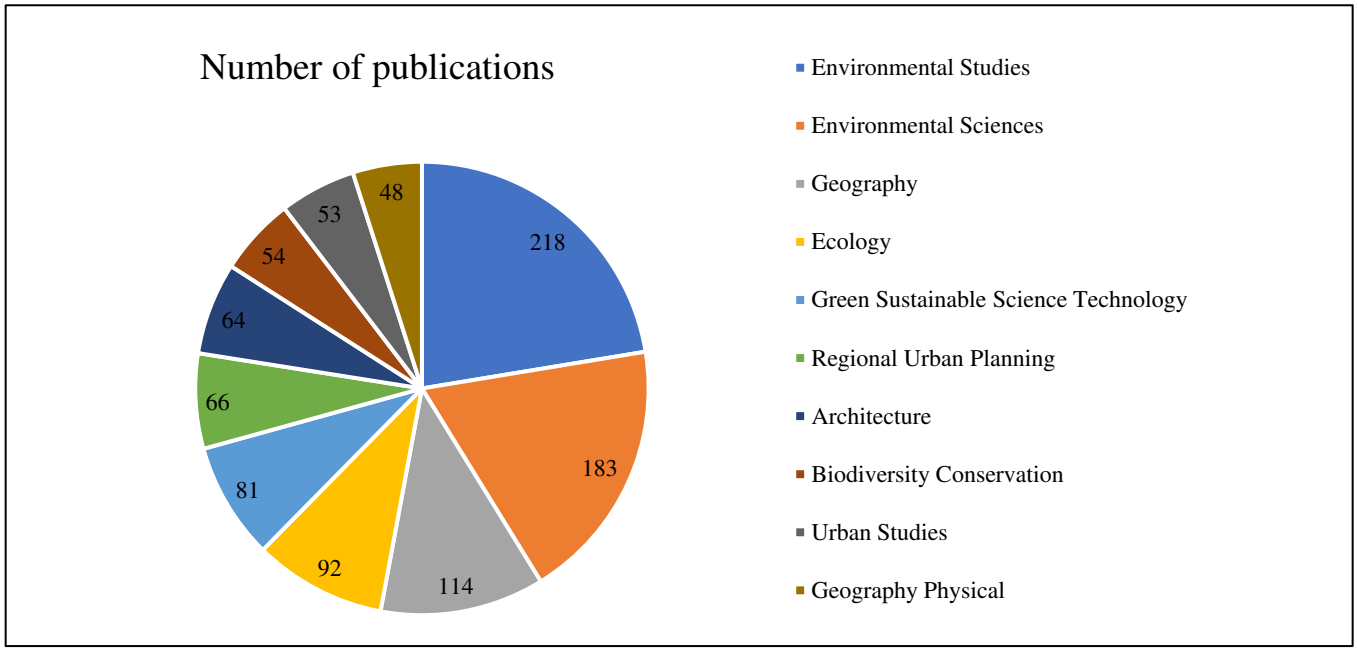

Figure 7. Top Ten WOS Categories with TVCL Publications.

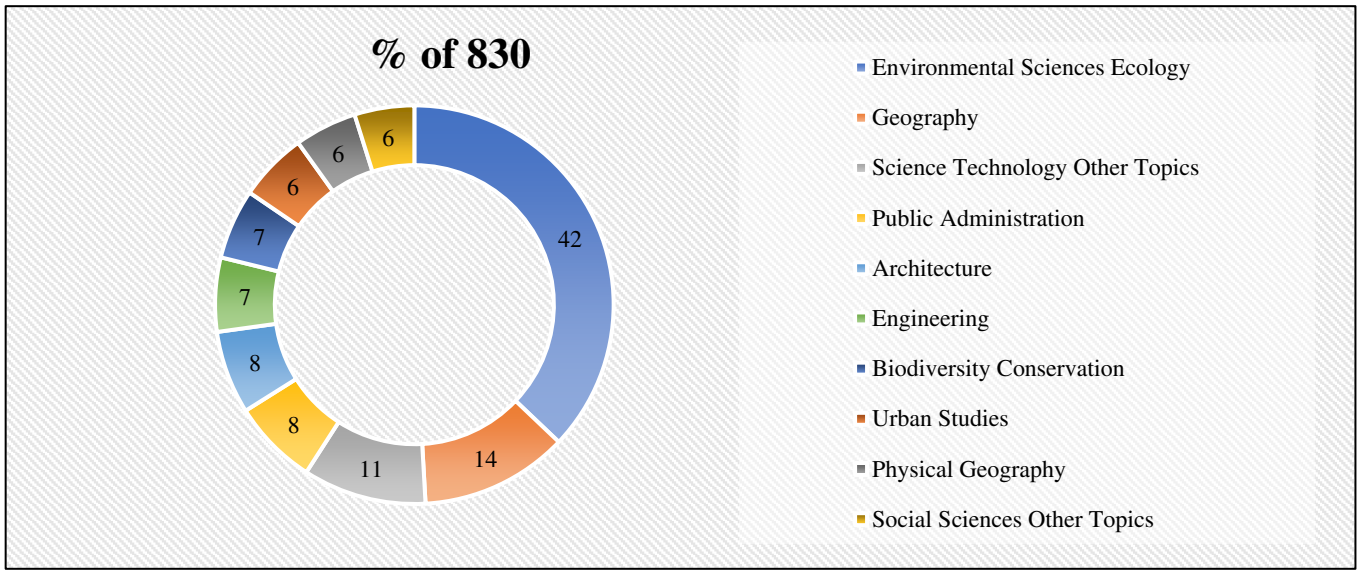

Figure 8. Top Ten Research Area with TVCL Publications.

3.2.2. Co-citation references analysis

Co-citation analyses the relationship between two items, including references, authors and countries. Figure 9 shows the literature co-citation network diagram from 1992 to 2023. Based on VOSviewer's reference co-citation analysis, we collected 36,539 citations, and when we set the threshold to 13, we obtained 26 references with a total link strength of 784. As shown in the figure, the line between the two spots indicates the relationship of the co-citation links of the references. The thicker the link, the more citations, the closer the relationship (Boyack & Klavans, 2010). These references were categorised into three groups, including red (9), green (9), and blue (8). These references are divided into colour groups according to the research questions, including cultural landscape management and planning, environmental science conservation, and historic landscape conservation. In the red cluster, Antrop (2005) proposes that past landscapes cannot be recreated but that it is essential to study how valuable elements and areas can be retained and made to function in a modern, urbanised and globalised society. In the green main cluster, MacDonald *et al.* (2000) propose to assess the environmental impacts of land abandonment and the decline of traditional agricultural practices. The blue cluster Agnoletti (2014) suggests that heritage conservation strategies need more attention. It can be seen that these three cluster directions are early research directions in traditional cultural landscapes. There is a high recognition of the value of intangible cultural property and conservation efforts.

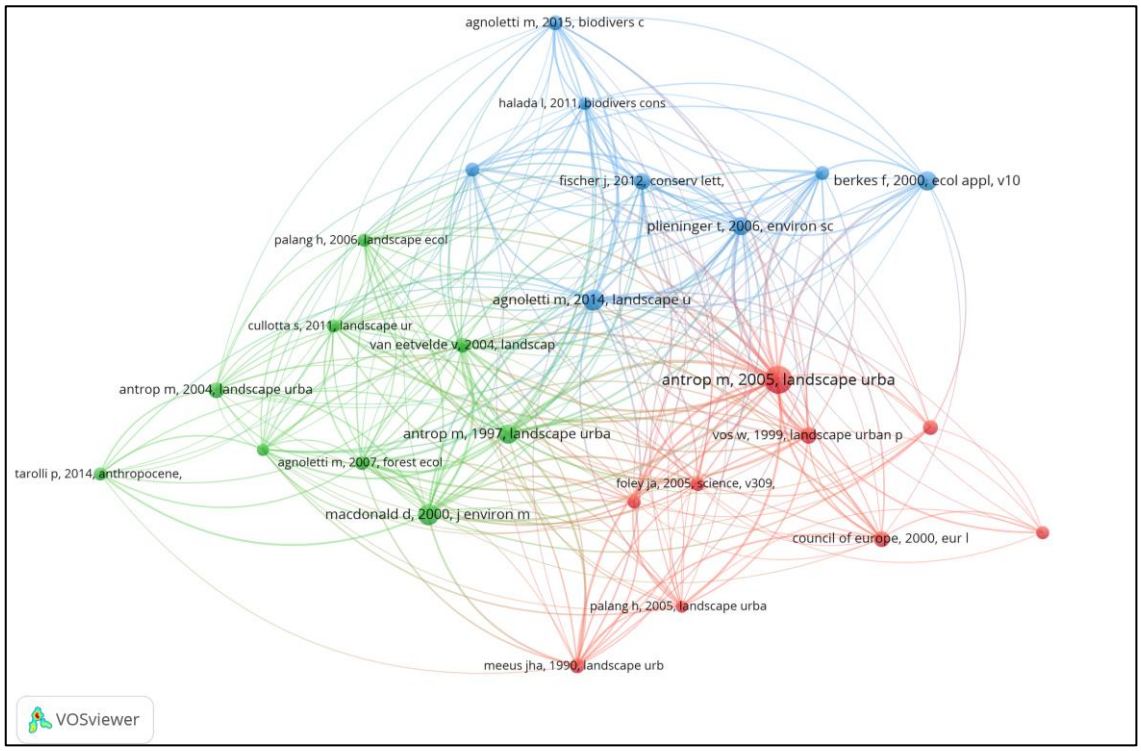

Figure 9. References Co-citation Network Map.

3.3. Keyword analysis of the TVCL research field

3.3.1. High-frequency keywords

The keywords reflect the research hotspots and trends in a particular subject area over a certain period (Y. Yang & Meng, 2019). Table 5 lists the evolution of the top 24 high-frequency keywords in TVCL-related publications, where the frequency of keyword co-occurrence is represented by link strength (Figure 10), with higher link strength indicating stronger links. The growth of thematic studies started in 2004; in addition to "cultural landscape", "landscape" the keywords "sustainability", "conservation", and "ecosystem service" have higher total link strengths of 43, 35, and 33, respectively, followed by "biodiversity" and "tourism". This shows that the development of TVCL research tends to be diversified and has a new direction.

Figure 10 Exploration of co-occurring author keywords using VOSviewer 1.6.20 software. A total of 2737 keywords appeared, with the minimum number of occurrences set to 5. A total of 63 keywords met the threshold. It shows a more explicit connection between the keywords and "traditional village". "Cultural forests", "cultural tourism", "geotourism", and "protected areas" have increased, which shows that how to revitalise traditional villages is a hot topic in recent years, while the connection between the traditional village cultural landscape and tourism development has been strengthened.

Table 5. TOP 24 Keywords of TVCL Publications.

Keyword	Occurrences	Link strength	Keyword	Occurrences	Link strength
Cultural Landscape	144	113	Ethnobotany	15	13
Ecosystem Services	58	33	Archaeology	13	9
Landscapes	54	46	Mediterranean	12	21
Sustainability	47	43	Vernacular Architecture	12	6
Land Use	44	31	Agriculture	10	14
Tourism	36	27	Resilience	10	11
Traditional Villages	34	21	Climate Change	10	8
Conservation	30	35	Nature Conservation	9	13
Biodiversity	21	28	Culture	9	11
Rural Development	19	15	GIS	9	8
Traditional Knowledge	16	11	Rural Abandonment	9	4
China	16	10	Agricultural Landscape	9	7

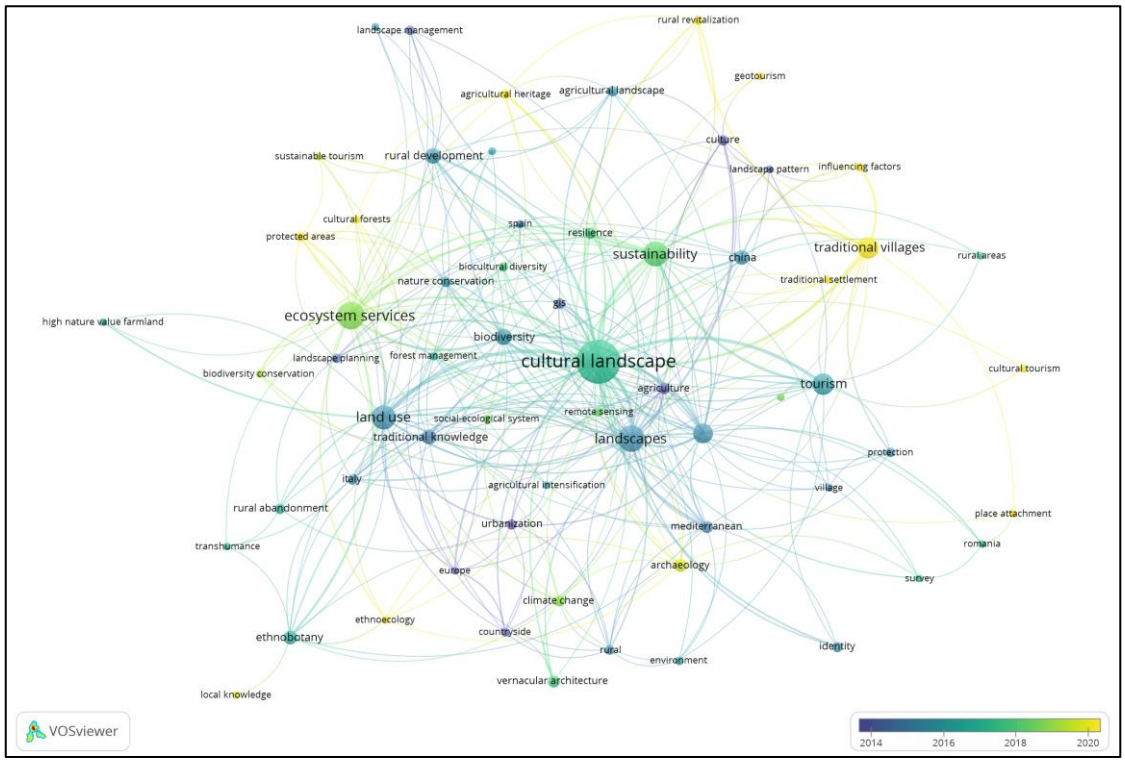

Figure 10. Keyword Co-occurrence Analysis.

3.3.2. Research clusters' identification

The Citespace software combines closely related keywords through an algorithm that assigns a value to each term (Zeng & Chini, 2017). The term with the highest value in the clustering is selected as the representative term and given a label. Three methods, LSI, L.L.R. and MI, were used to calculate the clusters, and in this study, LSI was chosen as the method that produced the best results for each cluster. As a result, 166 knowledge clusters were found. Cluster sizes are ordered from #0, and the largest cluster is assigned a value of zero. The many references the cited object covers are represented by the eleven viable clusters found after filtering, as seen in Figure 11 and Table 6.

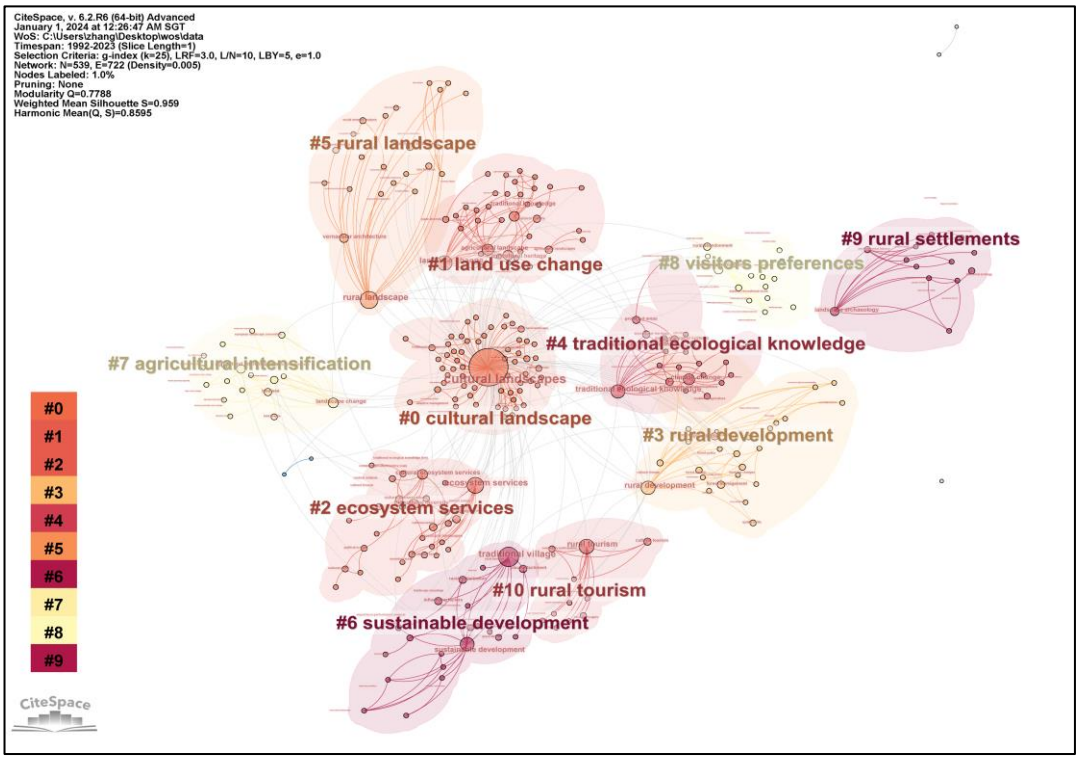

Figure 11. Cluster Identification.

Table 6. List of Cited Clusters.

Cluster ID	Size	Silhouette	mean (Year)	Top Terms (LSI)
0	62	0.984	2014	cultural landscape; spatial patterns; military landscape; traditional rural landscape; point cloud | cultural landscapes; almendares family; atacama desert coast; traditional group; settlement pattern
1	37	0.932	2012	land use change; cultural landscape; traditional knowledge; apuane alps; landscape diversity | land-use change; agricultural landscape; bio-physical drivers; land-use history; farming systems
2	31	0.946	2014	ecosystem services; machine learning: land-use modeling, traditional landscape structure; cellular automata | biocultural landscapes; farm systems typology; agricultural transition; energy-landscape integrated analysis; social metabolism
3	25	0.953	2008	rural deveropment resource dependency, destination marketing, first world; communiy development | community development; cultural change; complex adaptive systems; social change, religious landscape
4	23	0.947	2016	traditonal ecological knowledge; biodiversity conservation; agricultural diversification; sustainable rural development, ecosystem restoration | biocultural heritage; social-ecological systems; urban land conversion; rural socioeconomics; forest expansion
5	23	0.948	2011	rural landscape; environmental management, citizen involvement, secondary succession; dry-stone wall building | secondary succession; conservation management; functional traits; ecological filters; forest landscape
6	21	0.883	2017	sustainable development, cultural landscape; traditional village: measurement model; spatial autocorrelation | traditional villages; influencing factors; landscape pattern; southwest china; spatial distribution
7	18	0.935	2007	agricultural intensification; land-cover change; driving forces; rural-urban interface; agricultural abandonment | landscape change; mountainous tarm village; landscape heterogeneity, agrarian modernization; agrarian change
8	15	0.981	2008	visitor preferences; landscape planning; cultural landscape; landscape ecology; landscape preferences maps | farmer knowledge; land-owner perception; traditional land uses; rural abandonment spatial processes
9	13	1	2017	rural settlements; medieval europe research congress; human ecology; environmental archaeology; medieval archaeology | late antiquity; off-site surveys: balazote river valley; historical land uses; rural settlements
10	11	0.989	2014	rural tourism; sustainable development; fundata village; authentic traditions; leader approach | benefit sharing; cultural tourism; heritage tourism; community participation; touristic potential

Table 6 indicates that cultural landscape research demonstrated a trend of diversification from 2007 to 2017. Cultural landscapes are prominently reflected in clusters #0, #2, #6, and #8. Clusters #0, #1, #2, #7, #8, and #9 highlight the increasingly close relationship between land use and rural settlements. Traditional Ecological Knowledge is particularly prominent in clusters #1, #2, #4, #5, and #8. Sustainable development is notably evident in cluster #6 (2017), #4 (2016), and #10 (2014). Visitor preferences are concentrated in cluster #10, where community participation is closely linked to citizen involvement in cluster #5. Additionally, citizen involvement in cluster #5 is significantly associated with community development in cluster #3 and rural landscape conservation. It can be observed that ecology and land use research will continue to dominate in the future, and sustainable development is the future direction of development. Tourist preferences and community involvement will help to promote tourism development and further contribute to sustainable community development.

3.3.3. Research clusters' timeline

Analysis of the clustering timeline pinpoints important texts that influence our understanding of the cultural environment (Mommaas, 2004). It also accurately describes the beginnings and growth of each cluster as well as future trends in its existence.

Research has shown that ecological services, traditional ecological knowledge, sustainable development, and rural settlements have been the focus of cultural landscape research in recent years. Conservation-compatible livelihood, social innovation, behavioural needs, etc., must be considered when preserving traditional cultural landscapes.

3.3.4 Research trends

By analysing the high-frequency changes of each keyword over a certain period, it is possible to deeply explore the main content of the critical literature in the field of TVCL (Arora *et al.,* 2013). As shown in Figure 12, TVCL is undergoing significant impact and change. The Top 25 Keywords with the Strongest Citation Bursts can be divided into three main phases. The initial phase

was the outbreak of "Landscape Change" from 1997 to 2009, which was seen to focus the world's attention on TVCL. The second phase is 2010-2018, characterised by "rural landscapes", "rural tourism", "climate change", "ecosystem services", "land-use change", "traditional knowledge", and other keywords demonstrate that this phase focuses mainly on the ecological nature of the rural environment. The third phase is the period 2019-2023, in which "cultural tourism", "place attachment", "cultural ecosystems", and "landscape Archaeology". It can be seen that the world's research on traditional villages and cultural landscapes has become more diversified, especially the culture, history and ecology of TVCL have been highly recognised, while the "protected areas", "rural revitalisation", "sustainable development". This indicates that attempts are being made worldwide to explore sustainable development paths to revitalise villages.

These conceptual shifts lead us to conclude that, by centring on TVCLs, a more practical approach to addressing existing challenges in the TVCL-building process involves respecting local culture, investigating behavioural needs, and fostering tourism development. This paradigm shift has been a focus of research and practical applications in recent years.

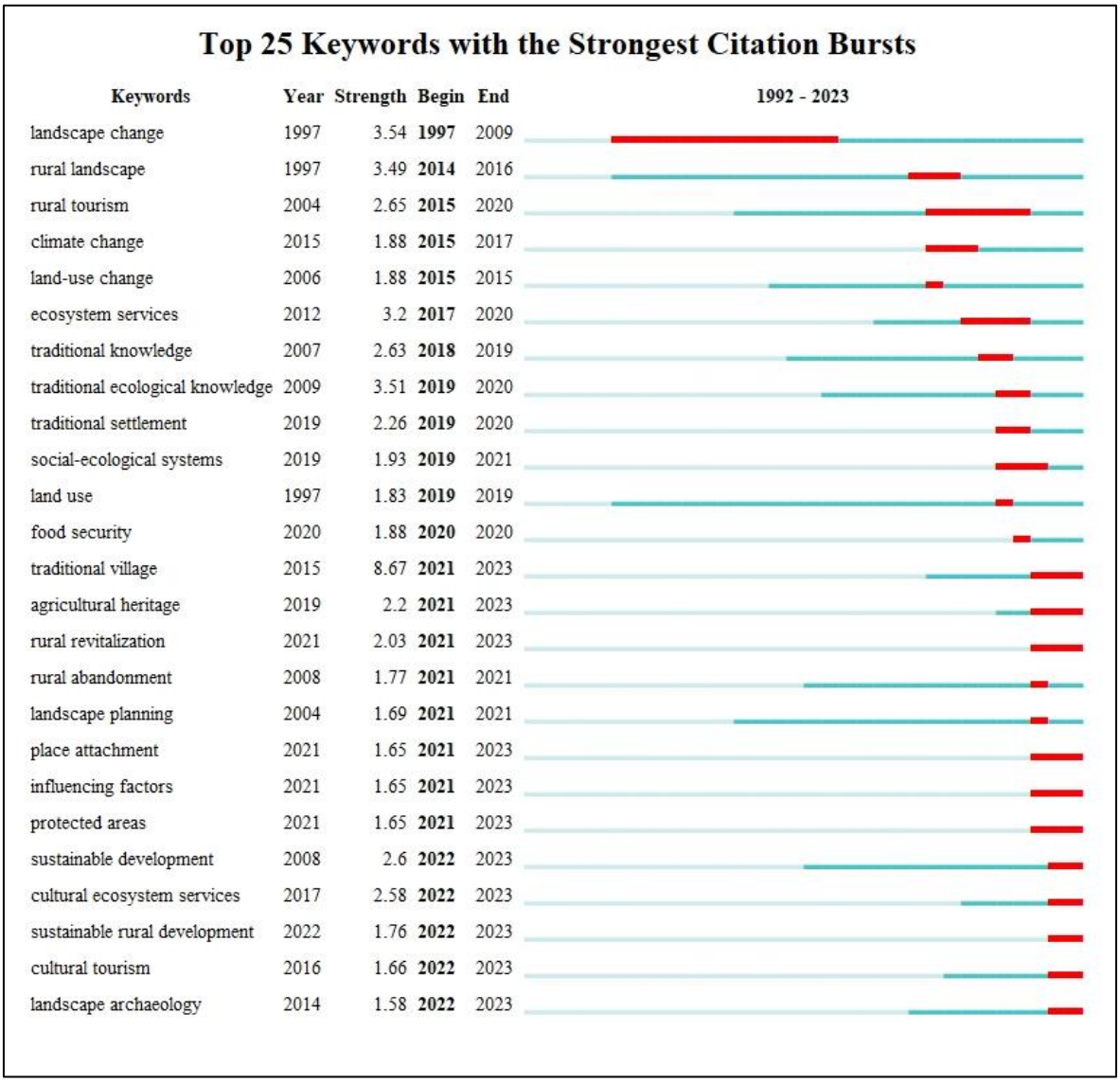

Figure 12. Top 25 Keywords with the Strongest Citation Bursts.

4. Discussion

In this paper, the data have been categorised and collated to elucidate the development of TVCL over the past three years and to forecast future trends. The subsequent sections offer detailed insights into the current status and future trajectory of TVCL research across three dimensions: research scope, content, and purpose.

Through analysis of TVCL research literature, this study identifies traditional villages, protected areas, and architectural heritage as key research scopes within the domain of traditional village

cultural landscape research. Notably, there has been a significant increase in attention towards traditional villages in recent years, particularly within the last five years, where the significance of architectural heritage has surged. Additionally, the term "protected area" emerged as a noteworthy topic in 2021(Esperanza, 2024), indicating a high degree of novelty and freshness in TVCL research.

In recent years, research on TVCL has diversified, focusing on three critical areas: influencing factors, place attachment, and landscape archaeology. Firstly, scholars have increasingly delved into understanding the factors influencing the conservation and development of traditional villages, particularly as urbanisation encroaches on these landscapes, threatening their existence (Alberti *et al.,* 2024; Yusuf *et al.,* 2024). Previous studies have mainly focused on the value of traditional villages and theoretical protection mechanisms while neglecting the factors affecting traditional villages (Bian *et al.,* 2022). Therefore, the factors influencing the conservation and development of traditional villages have received more attention in recent years. Secondly, heritage plays a crucial role in shaping a sense of place and harmonising social, cultural and community identities (Abukarki *et al.,* 2023). the concept of place attachment has gained prominence (Abukarki *et al.,* 2023; Yi *et al.,* 2023), highlighting the emotional connection individuals have with their environment and the challenges faced by traditional village cultural landscapes in maintaining their significance amidst resource constraints (Ramineni *et al.,* 2023). As a result, there has been a steady rise in the popularity of place attachments in recent years. Place attachment has been explored mostly from the perspective of tourists (Abukarki *et al.,* 2023; Pantelidis, 2021; D. Wang *et al.,* 2024), and there is a relative lack of literature examining it from the perspective of places of origin (Y. Guo *et al.,* 2024). Lastly, landscape archaeology has emerged as a pivotal field (Castro García & Martín-Arroyo Sánchez, 2024; May, 2024), seeking to preserve cultural records amidst rural landscape transformations driven by tourism and economic activities (Cherry, 2003). On the other hand, landscape archaeology aims to recover and store data no longer visible in today's landscape while supplementing this information to provide new field results (Apostolou *et al.,* 2024). These research areas underscore the interdisciplinary nature of TVCL studies and the importance of cultural heritage preservation across various sectors. By addressing these dimensions, researchers contribute to a more comprehensive understanding of traditional village cultural landscapes and pave the way for informed conservation strategies and sustainable development practices.

In recent years, the decline of traditional villages has underscored the need for their preservation. TVCL research has prioritised rural revitalisation, sustainable development, cultural tourism, and ecosystem services. Especially from the cluster analyses, ecology has been given high importance in the study of cultural landscapes, but there is little example of creating cultural ecosystem services systems in cultural landscapes and most of them remain at the theoretical research stage (W. Zhou *et al.,* 2023). At the same time, there is a tendency to prioritise tangible services over cultural ecosystem services, neglecting their cultural value (Salhi *et al.,* 2023). Cultural attributes will continue to be vital in future development. Thus, the research will focus on promoting the sustainable development of TVCLs by preserving their cultural and ecological landscapes. This emphasises the importance of integrating cultural and ecological considerations into development policies for long-term viability.

4.1 Practical Implications

Based on the literature review of TVCL from 1992 to 2023, this study proposes several practical recommendations for rural heritage preservation to guide policymakers and conservation practitioners. First, the sustainable development of traditional village cultural landscapes should emphasise ecological, cultural, and local characteristics to ensure that preservation efforts align closely with the unique attributes of the villages. Second, public awareness should be enhanced through education, participatory activities, and cultural events to strengthen the emotional connection and engagement between communities and heritage sites. Third, preservation measures should be tailored to local conditions, fully respecting and leveraging the unique value and features of each heritage site. Lastly, the establishment of long-term digital monitoring and evaluation mechanisms is recommended to dynamically optimise preservation policies and improve the scientific and sustainable management of heritage. This study not only broadens academic perspectives but also provides actionable guidance for effective heritage conservation practices.

5. Conclusion

This study highlights a significant increase in attention towards TVCL in recent years, with a diverse body of literature examining it from various angles. However, there are still research gaps, such as fewer studies on the overall image of traditional village tourism (Zheng *et al.,* 2024).

Utilising VOSviewer and Citespace software, we analysed 830 papers, visually assessing the current state and future direction of TVCL research. Firstly, national and regional data revealed that EU countries and China published the majority of TVCL-related papers, with China's attention to TVCL notably increasing from 2019 to 2023. Secondly, keywords like sustainable development of culture, tourism, and ecology emerged as significant in TVCL research. Thirdly, while tourist behavioural preferences have been extensively studied, less attention has been given to residents' preferences as hosts (G. Wang *et al.,* 2022), with limited comparative studies between the two (Casali *et al.* 2021). Exploring the future development of TVCL from different groups is essential. Lastly, TVCL's core competencies lie in its culture, history, sense of place, and ecology, as evidenced by keywords with the most robust citation bursts.

The findings presented stem from bibliometric analyses conducted using VOSviewer and Citespace. Compared to traditional methods, these methods offer a more intuitive understanding of country interconnections and precise identification of research hotspots. However, it's crucial to acknowledge certain limitations.

Firstly, our analysis relies solely on data from the WoS core database, potentially overlooking relevant literature from other databases like CNKI, Scopus, etc., leading to a partial representation of TVCL research breadth. Secondly, our focus on English-language publications may exclude relevant studies published in other languages, narrowing the scope of our investigation. Lastly, the dynamic nature of research means databases are continuously evolving, posing a risk of our analysis not capturing the latest information. Thus, future TVCL studies should aim to address these gaps to provide a more comprehensive understanding of the field.

Acknowledgements

I would like to express my sincere gratitude to my supervisor, Dr. Massoomeh Hedayati Marzbali, a lecturer at Universiti Sains Malaysia, for her tremendous help and support. I also extend my thanks to the editors of Forum Geografi and the anonymous reviewers for their time and feedback, which greatly contributed to the improvement and presentation of this article.

Author Contributions

Conceptualization: Zhang, C., Hedayati Marzbali, M.; **methodology**: Zhang, C., Hedayati Marzbali, M.; **investigation**: Zhang, C., Hedayati Marzbali, M.; **writing—original draft preparation**: Zhang, C.; **writing—review and editing**: Hedayati Marzbali, M.; **visualization**: Zhang, C., Hedayati Marzbali, M. All authors have read and agreed to the published version of the manuscript.

Conflict of interest

All authors declare that they have no conflicts of interest.

Data availability

The author confirms that all data generated or analysed during this study are included in this published article.

Funding

The research leading to these results received funding from [the Teaching Reform Research Project of the Hunan Provincial Department of Education in China] under Grant Agreement No [202401001381].

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