

Landscape and Tourism: Evolution of Research Topics

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Abstract: Tourism and landscape are broad and complex scientific research fields, as is the synergy between them has given rise to a volume of articles diverse in nature, subject matter and methodology. These difficulties mean that, at present, there is no complete theoretical framework to support this tourism and landscape research, nor complete knowledge of its structure and organization. This motivates the present work, which constitutes the first attempt at mapping this research topic by applying bibliometric techniques using VOSviewer and Science Mapping Analysis Software Tool (SciMAT) software. A total of 3340 articles from journals indexed in Web of Science were analyzed. The results obtained confirm that interest in the study of these concepts has been growing, especially in the last decade. The main contribution of this work lies in the identification of work themes that were basic to the construction of the field but that are currently in decline, such as “cultural heritage” and other themes important to the field that should continue to be dealt with, such as “national parks” or “geotourism”. The transversal nature of sustainability that appears in the network of keywords related to currently emerging themes, such as “planning” and “environment”, is also highlighted and reinforced.

Keywords: bibliometric analysis; Web of Science; SciMAT; VOSviewer; sustainability

1. Introduction

Although the term “landscape” was originally conceived as a geographical concept, it is now a holistic concept that is considered in different disciplines, including sociology, psychology, ethnology, landscape ecology and philosophy of nature [1]. Nevertheless, most concepts of landscape present a clear dichotomy: natural and anthropocentric [2]. The term landscape usually implies the holistic interrelation of human beings with a natural and physical environment [3,4]; this is clear in its systematization, where natural features are considered first, then socio-economic and technical features and, marginally, non-material aspects such as cultural and esthetic features [2].

In this way, many researchers define a landscape as the product of the actions and practices of humans who constantly make and remake the world around them, building a place within it that they can call home [5]. Landscapes can also be defined as the symbolic environment created by a human act of giving meaning to nature and the environment. In such cases, people transform their physical environment according to their cultural context [6]. In short, from all of these definitions, a landscape is the result of the interaction between human beings and nature, which converts the landscape into a diversity of visual, cultural and ecological constructions [7].

There are two closely related dimensions when it comes to seeing a landscape: the “inside” and the “outside”. The latter is the perspective of the outsider, who is often the tourist [8]. The interest in seeing the landscape first appeared with the discovery of its esthetic value, which was one of the factors that triggered the development of tourism in the 17th and 18th centuries [9]. Landscape and tourism are, therefore, two closely related terms. The landscape is revealed as a factor of attraction

and development for tourism, which in turn generates an impact on the landscape from very different perspectives [1,10]. The transformation of a “natural” landscape into a tourist landscape implies a fundamental symbolic and physical reordering of the characteristics of the former landscape [11].

Different types of tourism have different levels of impact on the environment, including its characteristics, vegetation, conservation and ecological balance. For example, ecotourism offers a new opportunity to protect nature reserves, but at the same time, ecotourism development can pose a risk to conservation [12] because of the disturbance caused by an excessive number of tourists, pollution and waste [13]. The pressure of excessive tourism may not only damage the natural environment of cities and towns but may also affect the brand image of the destination, which in many cases is associated with picturesque landscapes and a clean, green natural environment [14].

When referring to the idea of the “landscape”, it is not only the natural landscape that is included: there are as many different types of landscape as there are of types of tourism. Thus, excess tourism affects the urban landscape as well as the “natural” landscape [15,16], producing effects such as overcrowding, environmental and cultural degradation, resident dissatisfaction [17], housing modification, reductions in urban green spaces and the appearance of modern architectural structures [10]. Beyond the urban landscape, there is also the historical urban landscape, understood as an urban area resulting from the historical stratification of cultural and natural values and attributes that encompass the general urban context and its geographical environment, above a historical site or center [18]; here, tourist development can be both an opportunity for conservation [19] and a danger leading to its degradation, depending on the type of resource and the intensity of its exploitation [20].

When reference is made to the cultural landscape, the cultural features of a place are combined with the natural environment, becoming a focus of tourist attraction due to the high esthetic value [21], although one could speak of different layers of value based on the concept of authenticity [22]. Nevertheless, the landscape which the local residents experience (in which they pursue their daily life and social connections) [23] contrasts with that experienced by the tourist [8,24], who is attracted by the landscapes presented in guides or advertising leaflets, which in their turn reproduce the experience of other travelers and value the destination as a paradise [25]. This leads to generation of possible conflicts between the interests of locals and visitors regarding both the meaning of the place and the management of local resources [24].

Many rural landscapes developed for tourism have undergone economic restructuring and reordering in which local traditions and products become a tourist attraction [26], and the physical and esthetic qualities of the landscape have been changed by negotiation between the views and perceptions of farmers and tourists [8]. However, it should be borne in mind that tourism is a global phenomenon [3] that affects the landscape through the development of infrastructure (transport and services), the establishment of wildlife and heritage conservation areas [27] or the reconfiguration of local practices, with tourism becoming part of the daily life of those who live in such landscapes [21]. Each destination has a social and environmental carrying capacity that must not be exceeded to ensure sustainable development; otherwise development will negatively affect the well-being of the local population, their environment [14] and the character of the landscape, its values and the distinctions that make an area unique and different. Tourism can therefore threaten the distinctive character of its territory [7].

Tourism should help preserve the traditional and physical elements of the landscape while providing socio-economic benefits to its inhabitants [21]. It is therefore of vital importance to carry out adequate tourism planning which takes into account the interests of all of the agents involved in the territory—from the government and businesses to local residents—to guarantee sustainable tourism development [14], as well as effective land use policies to maintain the character of the landscape [7]. Policymakers focused on more sustainable tourism should be guided by principles such as local prosperity, social equity, visitor satisfaction, community well-being and biological diversity, among others [28].

The complexity of the interconnections between landscapes and tourism has given rise to research that contains multiple contrasting interpretations, with focuses that address the interactions between these two themes. To mention just a few examples, we find work from the point of view of rural tourism, in combination with agriculture and local development [8], gastronomic tourism [29], potential tourism in protected landscape areas [30], tourism in relation to reforestation [31], the relationship between wind farms and tourism [32], nuclear landscape and tourism [33], the management of beaches to guarantee sustainable tourism [34] or the analysis of indigenous culture concerning the promotion of landscape tourism [35]. Furthermore, studies in this field can be approached from a physical, experimental and cultural point of view [36], from the point of view of visual perceptions of the landscape based on photography [37], the anthropogenic point of view [34] or geotourism [3], among others. This field also contains a multiplicity of territories under analysis, from islands [38–40], forests [41,42] or mountains [43,44] to cities [45,46], valleys [47,48] and lakes [49,50].

Both the multidisciplinary nature and the multiple and complex interrelations between these two themes, landscape and tourism, have prevented dynamism and progress in the research into the tourist landscape in general [3]. Indeed, Terkenli stated that: *“So far, however, this body of work lacks an adequate organizational framework of analysis”* [51] (p. 346). Given the increase in the number of works published on this subject in recent years, the need to analyze this discipline through bibliometric techniques is justified. Two fundamental objectives were pursued through this analysis: to determine the evolution of the field, identifying variables such as main authors, journals or most cited works, and to clarify the main research topics in the field, as well as their evolution and importance. To achieve these objectives, the first bibliometric review of this subject (“landscape and tourism”) was carried out based on the information collected on the Web of Science (WoS) database using VOSviewer [52] and SciMAT [53] software.

2. Materials and Methods

The methodology applied in this research was bibliometric analysis—that is, a quantitative analysis of scientific production through its literature, which allowed us to follow the evolution of a scientific discipline (here, landscape and tourism) in depth [54,55]. This study combined two types of bibliometric analysis [56]: performance analysis, using productivity and impact indicators that reveal the number of articles and citations, main journals and authors [57], and science mapping or conceptual analysis, through which the main research topics, their structure, evolution and trends were obtained. The bibliometric search was carried out in one of the main databases containing scientific production with the greatest impact [58]: the Web of Science (WoS) Core Collection [59].

On 1 September 2020, a total of 3806 articles were extracted from this database using the search terms “landscape” AND “touris *” (these terms could appear in the title, abstract and/or keywords). This resulting set of articles was filtered manually, eliminating one article with a publication date of 2021, which did not correspond to our period of study. We also eliminated 10 “proceedings” and a total of 455 articles that did not have author keywords. To obtain thematic groups, only the original keywords defined by the authors in their articles were used as the unit of analysis [60]. With this last filter applied, publications from 1980 to 1991 were eliminated, as they did not contain keywords from the authors. It is important to highlight this fact because, although our analysis begins in 1992, the first article published in WoS on the subject dates from 1980. We obtained a final data set consisting of 3340 articles published in 1338 different journals between 1992 and 1 September 2020, containing a total of 17946 keywords of authors.

For the analysis, we used VOSviewer software, which allows the visualization of distance-based bibliometric networks, working with different analysis units, including authors, organizations, countries, keywords or cited references, and units of measurement, such as co-authorship, co-occurrence, citation, bibliographic linkage or co-citation [61,62]. We also used the Science Mapping Analysis Software Tool (SciMAT) [63], which allows the elaboration of science maps using different measures

of data normalization (association strength, equivalence index, inclusion index, Jaccard's index and Salton's cosine) and based on the h-index, g-index, hg-index and q2-index, among others [56,64].

For this study, the co-occurrence of the keywords proposed by the authors in the different articles was analyzed. VOSviewer software makes it possible to remove duplicate keywords from the database extracted from the WoS through thesaurus files and then build the co-occurrence network of keywords [56]. One of the main advantages of this software is the construction of graphic maps of the relationships among the data [65]. In these graphic representations, the nodes represent the variable analyzed (keywords in our case), and the thickness of the lines that connect them indicates the intensity of the co-occurrence. The keywords are grouped into clusters differentiated by color [66].

One of the most helpful aspects of SciMAT is the representation of the topics analyzed in four categories (motor, highly developed and isolated, emerging or declining, and basic and transversal clusters) depending on Callon's centrality and density indicators. Centrality can be interpreted as the external cohesion of the network, because it measures the degree of a system's interaction with other networks, while density can be understood as the internal cohesion of the network, because it measures the inner strength of the network [30,63].

3. Results and Discussion

3.1. Evolution of Scientific Production: Performance Analysis

To determine the evolution of the subject of study, some of the main bibliometric characteristics defining it were analyzed, including number of articles published, number of authors, citations, journals and countries. As shown in Table 1, 85% of the production in this field has been published in the last decade. The increase in the number of publications (ApY) has evolved in parallel with the increase in the number of authors who publish on this subject (AupY), with 2019 standing out with 1174 authors. This is also mirrored in the evolution of the number of journals (JpY) that have published at least one article on landscape and tourism in a given year (which has increased from 1 in 1992 to a maximum of 246 in 2019) and the number of countries (CpY) that have published at least one article on the subject. This indicates that the scientific community throughout the world has shown a progressive interest in the subject of landscape and tourism, which is reflected in publications in an increasing number of journals.

As for the evolution of the average number of citations per article ($\sum \text{Cpy} / \sum \text{Apy}$), the highest figures appear in publications at the end of the 1990 s and the beginning of the 21st century, although this indicator presents more fluctuation than the previous ones.

Table 1. Evolution of the main characteristics of the published articles related to landscape and tourism (1992–1 September 2020).

Year	ApY	AupY	CpY	$\sum \text{Cpy} / \sum \text{Apy}$	JpY	CopY
1992	2	4	14	7.0	1	7
1993	4	6	93	17.8	3	6
1994	3	5	71	19.8	3	3
1995	7	14	535	44.6	5	7
1996	6	13	129	38.3	6	10
1997	5	8	401	46.0	5	6
1998	4	7	127	44.2	4	6
1999	12	22	583	45.4	11	14
2000	11	24	565	46.6	9	13
2001	13	23	594	46.4	12	17
2002	9	18	236	44.1	9	10
2003	24	55	1028	43.8	23	21
2004	18	33	356	40.1	16	18
2005	37	68	1005	37.0	30	22
2006	51	108	1204	33.7	42	29

Table 1. Cont.

Year	ApY	AupY	CpY	$\Sigma \text{CpY} / \Sigma \text{ApY}$	JpY	CopY
2007	76	190	1979	31.6	65	35
2008	112	288	2608	29.3	77	38
2009	106	236	1779	26.6	82	44
2010	161	395	2840	24.4	117	45
2011	158	410	2184	22.4	107	49
2012	180	400	2316	20.7	137	53
2013	189	468	2174	19.2	138	57
2014	221	533	1918	17.6	165	54
2015	259	693	2091	16.1	182	57
2016	267	708	1671	14.7	192	63
2017	338	935	1580	13.2	212	69
2018	380	1137	1628	12.0	235	73
2019	406	1174	632	10.6	246	77
2020 (Until Spt.1)	281	924	117	9.7	167	71
Total	3340	8899	32,458		2301	

ApY: number of articles published per year; AupY: number of authors per year; CpY: number of citations per year; $\Sigma \text{Cpy} / \Sigma \text{Apy}$: average number of citations per article (citation total since 1992/total of articles since 1992); JpY: number of journals that published at least one article in a specific year; CopY: number of countries that published at least one article in a specific year. Source: prepared by the authors based on Capobianco-Uriarte et al. [67].

More precisely, the number of articles published on landscape and tourism shows a clear upward trend since 1992, highlighting years such as 2002 and 2016 in which the growth in publications was even more striking (Figure 1).

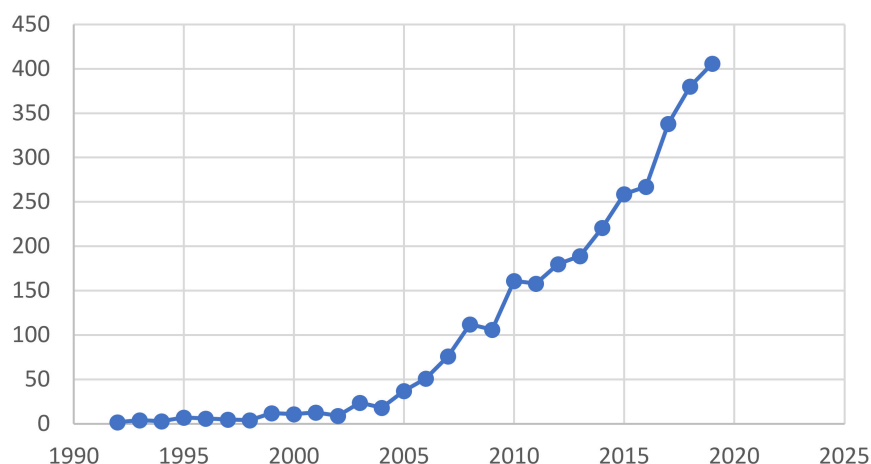


Figure 1. Number of articles published per year (ApY). Source: prepared by the authors based on Web of Science (WoS) data.

From 2006 onwards, articles about research supported by some kind of subsidy from public or private bodies began to be published and both the number of articles benefiting from this type of funding and the number of funding organizations has been progressively increasing year after year. We then considered ordinary least square (OLS) regression models with fixed effects to analyze the possible influence of the subsidies received and the funding organizations on the level of scientific production. Two regressions were carried out to explain this relationship due to the severe multicollinearity between the variables. The contrasts carried out were corrected for heteroscedasticity using the White procedure and do not show any symptoms of autocorrelation. The results are presented in Table 2.

Table 2. Fixed effect ordinary least square (OLS) regression models—panel data.

Estimates	Model 1		Model 2	
	Coefficient	t-Statistic	Coefficient	t-Statistic
Constant	19.01842	3.708894	12.14329	3.295575
Aids received	2.488003	2.880295	–	–
Funding organizations	–	–	7.430096	5.358815
R2	0.593656		0.766223	
R2 adjusted	0.590153		0.764208	
D–W	1.652098		2.221049	
F Test	169.4724		380.1996	
No. observations	58		58	

Dependent variable: number of articles published (years). Source: prepared by the authors based on WoS data.

All of the estimators calculated for the explanatory variables of scientific production, as predicted by scientific theory in this field, show positive signs and are also highly significant, with a confidence level of 99%. Based on the results obtained in the estimates made, and with due caution, it can be stated that research grants and funding organizations appear to have been key elements in the level of scientific production in the countries over the period analyzed, with China, the United States and Spain, respectively, standing out as the countries which have received the largest number of grants for publication in this field since 1992.

In the following tables, greater detail is given about the variables analyzed in Table 1: number of citations, journals and authors and journals. Table 3 breaks down the citation structure of the field under study. There appears to be a high concentration of works with no or a low percentage of citations. Specifically, more than 60% of the literature on landscape and tourism has four or fewer citations. This may be because the work is not considered important enough to be cited, or because studies are too recent [68]. Reinforcing this second explanation, 31.6% of works with four or fewer citations were published in 2019 and 2020.

Table 3. General citation structure in landscape and tourism.

Number of Citations	Number of Articles	% Articles
>300	3	0.09%
300–200	3	0.09%
150–199	8	0.24%
149–100	25	0.75%
99–75	34	1.02%
74–50	68	2.04%
49–25	201	6.02%
24–10	450	13.47%
9–5	487	14.58%
4–1	1041	31.17%
No citations	1020	30.54%
Total articles	3340	100.00%

Source: prepared by the authors based on WoS data.

In contrast, the three most important works in the field, according to the number of citations received [57], have more than 300 citations (Table 4). *Annals of Tourism Research* is the journal with the most cited article, followed by *Ecological Economics* and *Tourism*. It should be noted that these three journals do not coincide with the three most productive journals in the field (Table 5).

Table 4. Most cited papers (1992–1 September 2020).

Authors	Title	Source	Year	Citations in WoS	Citations per Year
MacKay, K.J.	Pictorial element of destination in image formation	ATR	1997	343	14.29
Raymond, C.M.; Bryan, B.A.M., Darla, H.; Cast, A.; Strathearn, S.; Grandgirard, A.; Kalivas, T.	Mapping community values for natural capital and ecosystem services	EE	2009	335	27.92
Stone, P.R.	A dark tourism spectrum: Towards a typology of death and macabre related tourist sites, attractions and exhibitions	T	2006	305	20.33

Abbreviations: ATR: Annals of Tourism Research; EE: Ecological Economics; T: Tourism. Source: prepared by the authors based on WoS data.

The three journals that published the most papers on tourism and landscape, by volume of published articles, are listed in Table 5. Although *Sustainability* does not specialize in the field of landscape and tourism, but is an interdisciplinary journal that treats sustainability from various perspectives including economic, social, cultural and environmental, it has the highest number of published articles, with 122. There is a large gap in terms of publications with the second journal, *Land Use Policy* (with 65 articles), but more than double the number of citations, 1235. The third journal, *Tourism Geographies*, is an international journal on tourism space, place and environment. This difference in productivity between journals can be explained, in part, by their publication volume. In *Sustainability*, for example, the number of articles per issue has increased progressively since 2009, where in Vol. 1, issue 1, 8 articles were published, while 404 have been published in 2020 (Vol. 12, issue 16). In addition, from 2019 onwards, this journal publishes two issues per month, instead of one as in previous years. In contrast, *Land Use Policy* publishes ten issues a year and *Tourism Geographies* only five, with a volume of articles per issue far lower than the 404 published in *Sustainability*.

Although papers on the topic have been published in 1338 different journals, more than 68% of the published papers are concentrated in just 30 journals.

Table 5. Most productive journals for landscape and tourism (1992–1 September 2020).

Journal	N° of Items	N° of Citations	Average Citations
<i>Sustainability</i>	122	500	4.1
<i>Land Use Policy</i>	65	1235	19
<i>Tourism Geographies</i>	51	667	13.1

Source: prepared by the authors based on WoS data.

A total of 7419 different authors have published articles related to landscape and tourism during the study period, according to data obtained from the WoS. However, more than 87% of the authors produced only a single article, indicating a low concentration in this field, and only four authors have published ten or more articles, positioning themselves as reference authors with greater specialization in the subject (Table 6).

Table 6. The most productive authors in landscape and tourism (1992–1 September 2020).

Author	N° of Articles
Zhang, J.	13
Verburg, P.H.	11
Hall, C.M.	10
Jeong, J.S.	10

Source: prepared by the authors based on WoS data.

3.2. Conceptual Analysis: VOSviewer and SciMAT

The analysis of the keywords used in the articles shows us both the most relevant topics and the main research trends in the area [69]. Figure 2 was constructed using VOSviewer, which makes it possible to visually demonstrate the differences in scientific production [70]—in our case, between the keywords used by the authors. Figure 2 illustrates the most frequently used keywords in the different papers, and these keywords indicate the most studied topics. Due to the high number of keywords used by the authors, only keywords that occurred a minimum of 20 times have been used. Using this criterion, a total of 40 items were found, grouped into five clusters (differentiated by color) with a total of 349 links between them. The most frequently recurring keywords are represented in larger nodes. The shorter the distance between the different nodes, the stronger the relationship between the keywords [52].

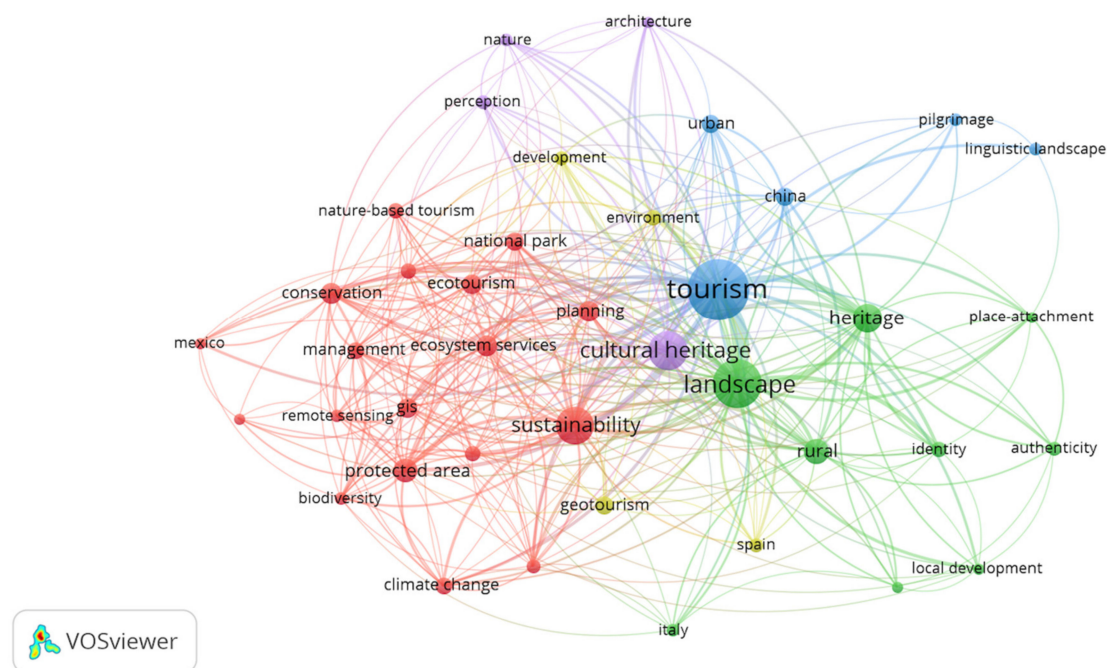


Figure 2. Co-occurrence network of keywords (2092—1 September 2020). Source: prepared by the authors using VOSviewer and based on WoS data.

As expected, “landscape” (with 365 occurrences and 38 links to other keywords) and “tourism” (569 occurrences and 37 links) are the keywords that recurred the most, which means that they are at the center of the network. However, Figure 2 also highlights the importance of “cultural heritage” and “sustainability”, both present in more than 200 documents and with more than 30 links to other keywords. These four words, therefore, constitute the nucleus of four of the five clusters identified. Cluster 1 (sustainability) is the most numerous, consisting of 18 items such as national park, land use, conservation, biodiversity or protected area. Cluster 2 (landscape) is made up of nine items including identity, rural, authenticity, local development and place-attachment. Cluster 3 (tourism) is made up of five items, such as urban or linguistic landscape. Finally, clusters 4 and 5 are made up of four items each, such as development, environment and geotourism in the first, and architecture, perception and nature, in the second. It should be noted that in four of the five clusters a node has appeared relating to the country in which the different analyses are carried out, with Mexico belonging to cluster 1, Italy to cluster 2, China to cluster 3 and Spain to cluster 4.

From this first approach to the main keywords used in this research topic throughout the period analyzed, a much more detailed analysis can be made, subdividing the period of study in different stages. As previously mentioned, despite the positive trend of growth in the publication of publications

on landscape and tourism, changes in productivity can be observed both in 2002 and 2016 (Figure 1), which allows us to identify three stages of research [57].

The first period (1992–2002), which we can call the “initial stage”, contains a total of 76 articles published (almost seven articles per year). The year 2001 stands out with 13 articles published. A second “developmental stage” (2003–2016), in which more than 132 articles were published per year, witnessed a total of 1859 publications. In this stage, the year 2010 and after showed above average productivity. Finally, there has been an “expansionary stage” (2017–1 September 2020) with more than 351 articles per year and a total of 1405 published. This last stage of barely four years represents 51% of the total production of literature in the field to date. Figure 3 shows the bibliometric map of the evolution of the research topics during the three time periods. The inclusion index has been used to detect the links between the different themes (represented by circles) and to define the thematic areas (lines). The size of the circle corresponds to the number of documents in each theme.

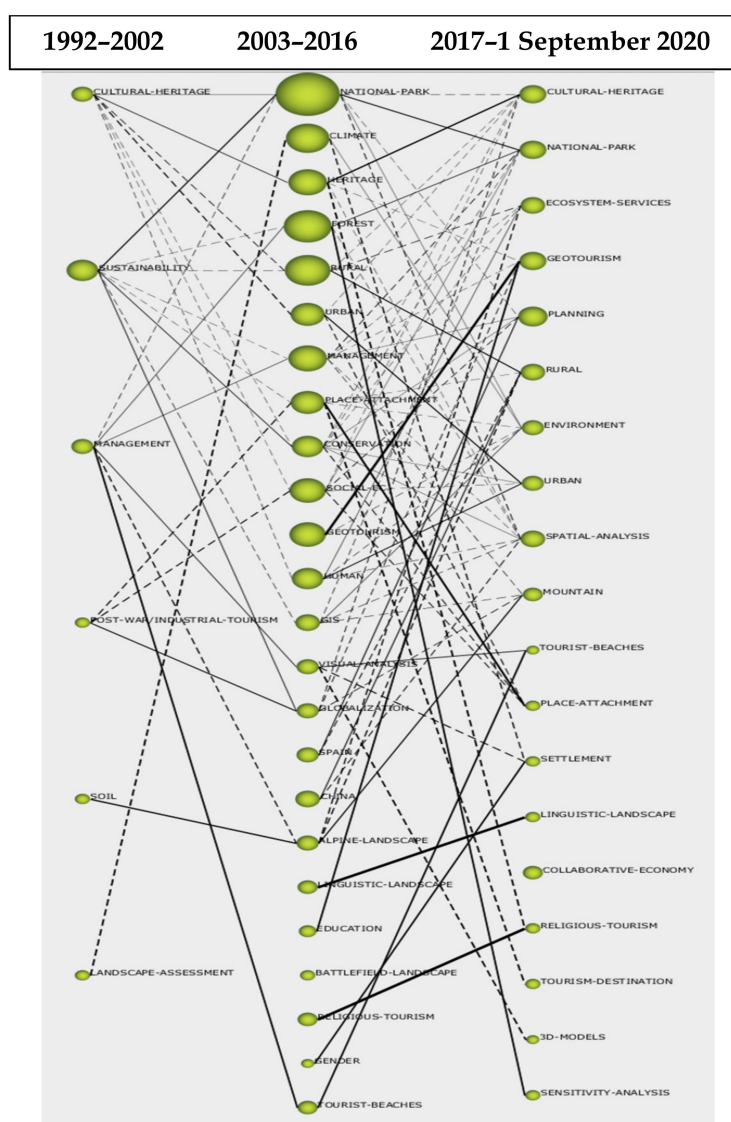


Figure 3. Thematic development (1992–1 September 2020). Source: prepared by the authors on the basis of SciMAT data.

In the first column of Figure 3, six research topics can be identified in the first period, 1992–2002. It can therefore be said that the subject studied began to be considered based on analyses focusing on “cultural heritage”, “sustainability”, “management”, “post-war/industrial tourism”, “soil” and

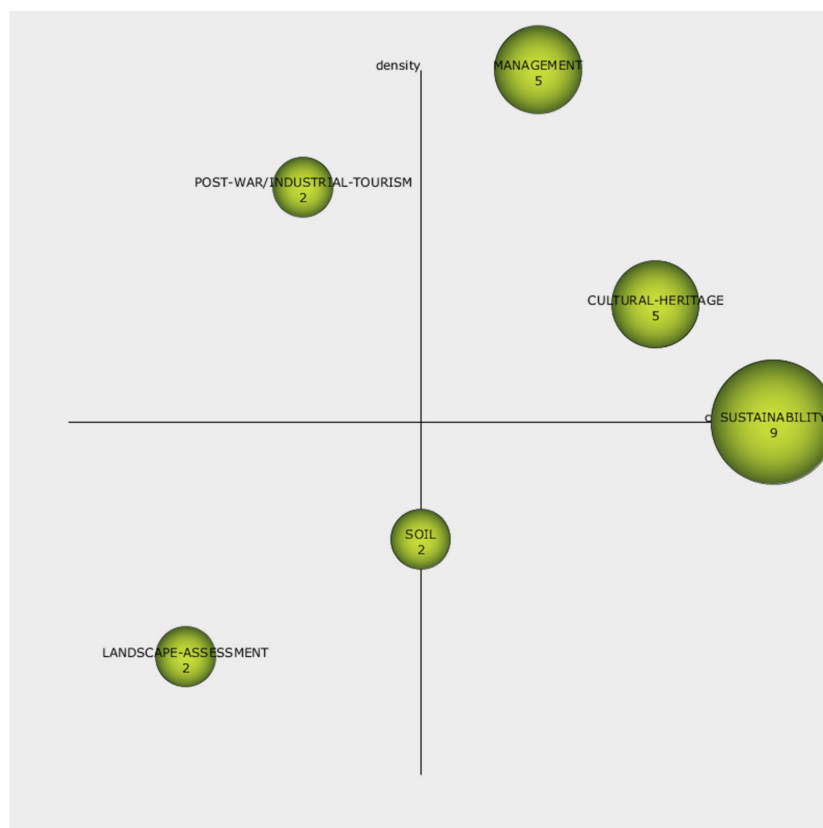
“landscape assessment”. The “cultural heritage” cluster includes terms related to “cultural landscape”, “cultural tourism” and “cultural ecosystem services”. The cluster “sustainability”, is a wide and transversal concept, but as a cluster is basically made up of two main components: sustainable tourism and sustainable development. “Management” is also a broad term encompassing coastal, tourism, landscape and territorial management, as well as waste management. The cluster of “post-war/industrial tourism” includes work centered on postwar tourism and post-industrial landscapes, referring to the Cold War, the Vietnam War, the First World War and the phenomenon of post-colonialism. Finally, under the term “soil” there are keywords fundamentally related to soil erosion, as well as the relationship of the soil with flora and fauna. The last group, “landscape assessment”, is the most homogeneous, as it is made up mainly of the keyword which gives the group its name, as well as other, similar keywords that refer to landscape assessment.

However, during the second period, 2003–2016, a greater diversity of 24 total themes related to the previous ones appeared. Of these 24, only “management” from the previous period was conserved, with other important themes such as “national park”, “climate”, “forest” and “rural” appearing. A distinction can be made between themes with strong connections to those from period one (continuous lines)—such as “national park”, “heritage”, “forest”, “management”, “conservation”, “visual analysis”, “globalization”, “alpine landscape” and “tourist beaches”—and other themes that have a weaker connection (dotted lines) sharing keywords with the previous period but not indicating the main research topic, such as “climate”, “rural”, “urban”, “place attachment”, “geotourism”, “human” and “GIS” (this corresponds to the acronym for the geographical information system, a computer system for capturing, storing, checking, and displaying data related to positions on Earth’s surface). The groups “urban” and “rural” refer, fundamentally, to the type of tourism and the development of these territories, and the term “human” encompasses all types of impact that human activity has on a territory (e.g., footprint, pressure, transhumance).

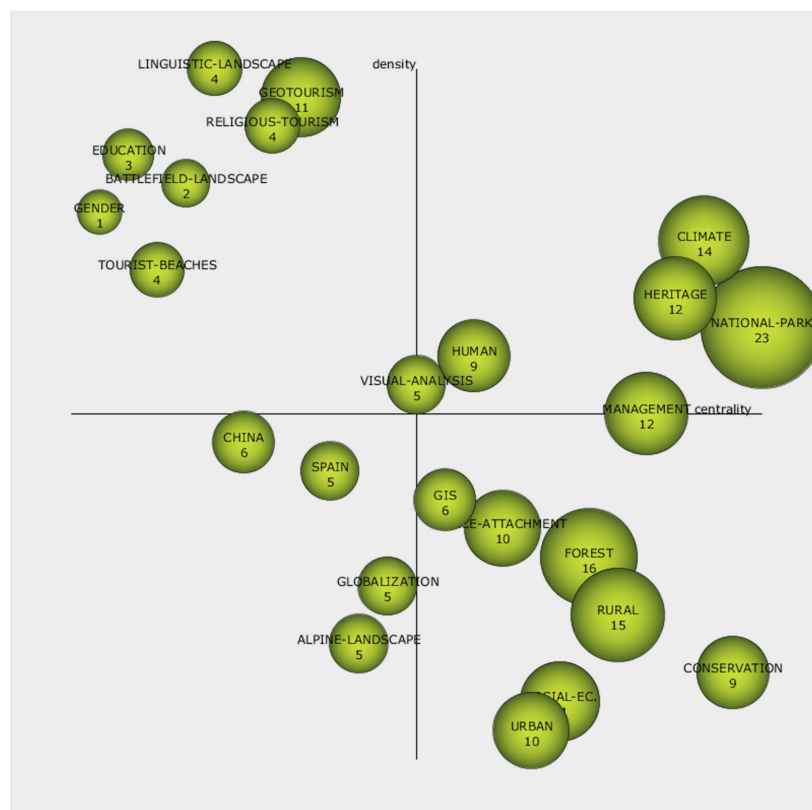
Finally, in the third and final period, 2017–1 September 2020, there is a small decrease in the number of research topics, to 19, with eight of the topics from the previous period remaining (national park, rural, urban, place attachment, geotourism, linguistic landscape, religious tourism and tourist beaches), with “management” (present in the first two stages) disappearing, while “cultural heritage” reappears from the first stage. In addition, ten new themes emerge for this period: “ecosystem services”, “planning”, “environment”, “spatial analysis”, “mountain”, “settlement”, “collaborative economy”, “tourism destination”, “3D models” and “sensitive analysis”.

It is necessary to clarify that the “heritage” group (which appears in the second stage) is created to differentiate it from the “cultural heritage” group (first and third stages), a group with a complete identity and explicit reference to culture, while “heritage” includes a diversity of themes related to the subject, such as preservation, interpretation, modernization and policies. Nevertheless, Figure 3 illustrates the strong interrelationship of these two groups, which are united through continuous lines. The different themes identified in Figure 3 for each period are represented in a strategic diagram, in which the size of the circle is proportional to the number of documents linked to each research theme. The h-index for each theme is provided next to each one (Figure 4).

For the first decade (1992–2002), three fundamental themes stand out in this field, with the greatest number of documents published and the highest h-index: “sustainability”, “cultural heritage” and “management”. The first theme is the most central, but it can be said that all three are highly developed and essential in the construction of the research area. Although “sustainability” will not appear again in the following periods of the field’s evolution, it is a transdisciplinary concept [71,72] which, as can be seen in its network of keywords (Figure 5), is related to 11 other keywords: “ecotourism”, “recreation”, “planning”, “conservation”, “agriculture”, “destination”, “islands”, “land use”, “resources”, “environment” and “globalization”. Although “sustainability” does not appear in the conceptual maps of the following stages, most of these keywords do, so it cannot be said that sustainability is not being addressed after 2003, but rather that it is being worked on in a less direct and more transversal way in conjunction with various other themes.

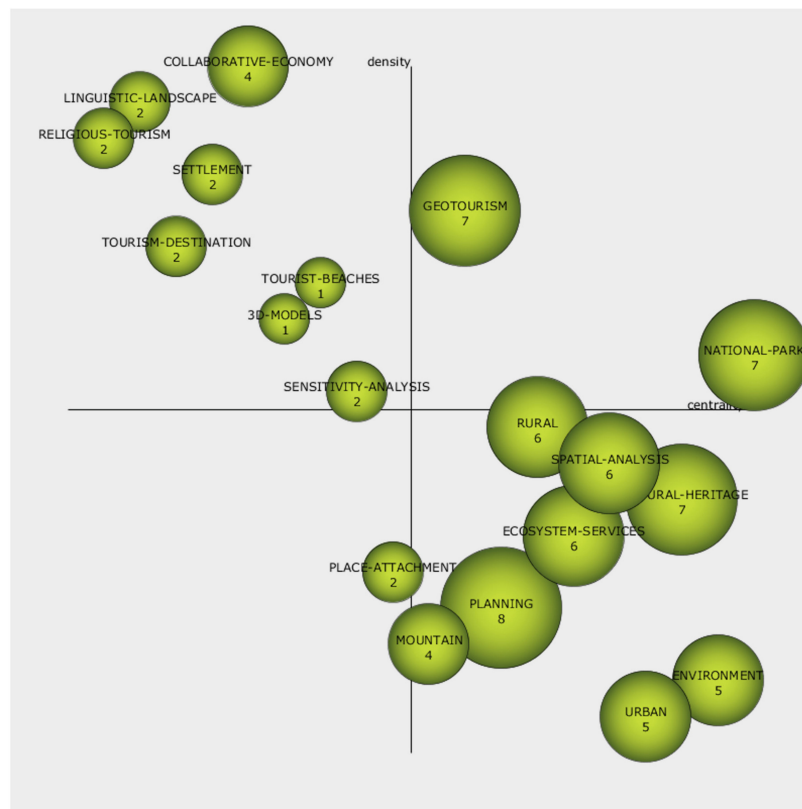


(a)



(b)

Figure 4. Cont.



(c)

Figure 4. (a) Strategic diagram for the period 1992–2002. (b) Strategic diagram for the period 2003–2016. (c) Strategic diagram for the period 2017–1 September 2020. Source: prepared by the authors on the basis of SciMAT data.

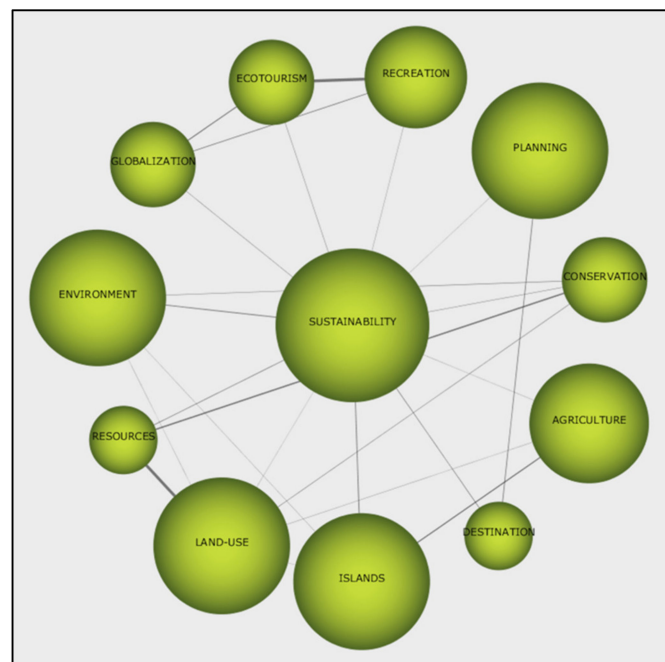


Figure 5. Thematic network of the main cluster 1992–2002. Source: prepared by the authors on the basis of SciMAT data.

In the second period (2002–2016), “management” continues to appear at least partially as the driving theme with greater relevance to the subject than in the previous period (centrality), but a lower degree of subject development (density); instead of “cultural heritage”, another driving theme closely related to it appears, but much broader: “heritage”. “National park”, “climate”, “human” and “visual analysis” can also be included as driving themes in the second period. This is also the period in which the greatest number of essential themes concern the countryside as an area and in which various emerging themes also arise (lower right quadrant) such as “rural”, “urban” or “forest”, as well as general and transversal themes, such as “globalization” or analysis of territories in “Spain” and “China”.

In the last period (2017–1 September 2020), “geotourism” appears to have gained great moment, after first appearing as a specialized theme at the periphery of the research area in the previous period, in this third stage it becomes, together with “national park” (maintaining its position from the previous period), of key importance. It is possible that “geotourism” will evolve in the same manner as “national park”, becoming a subject of interest over the long term and serving to motivate a large part of the future research in this field, but it is also possible that it could evolve like other driving themes from the two previous periods, gradually allowing the interest of researchers to shift from this theme to others that will become new driving forces. In this period, other new themes also appear which are very attractive, although not as developed as the driving theme. These new themes include “ecosystem services”, “planning” (in which spatial, landscape and tourism planning are dealt with) and “environment” (a very broad theme that covers education, perception, protection, impacts, policies, etc.). Other highly topical and innovative subjects such as “collaborative economy”, “3D models” or “sensitive analysis” also appear, but these are quite specialized and therefore present internal and external connections with other weaker keywords. “Cultural heritage” is no longer the driving force it was in the first period, and is now located finally in the lower right quadrant, which indicates it can be interpreted as a theme in decline.

Many of the emerging themes from the previous period remain in the same quadrant, although with slight changes that bring them closer to potentially becoming driving themes for future stages, as is the case with “rural” and “spatial analysis”. There is also continuity of some of the second stage themes in the same upper left quadrant during this third period, as in the case of “religious tourism”, “tourist beaches,” and “linguistic landscape”. Although a priori they are not very relevant to the field, the fact that they are present in both stages suggests that they are mature, although not innovative, themes which have been recurrent throughout the discipline for a group of researchers (this assumption is reinforced by the fact that “linguistic landscape” is shown in Figure 2, which analyses the whole period). It is therefore likely that these issues will continue to appear in the same quadrant in future research.

Finally, it should be noted that a considerable number of articles deal with issues that are not included in the different strategic diagrams. These include research focused on territorial development (especially at a local level), human impact (e.g., ecological footprint, conservation and impact at a social level) and waste (solid, liquid) management and planning. That these issues do not appear in the strategic diagrams may be because these are subjects whose development has not been the focus in a specific period (of the three analyzed), but they are subjects in which the researchers show a continuous interest throughout the whole period of study, with the articles concentrating on them being scattered throughout.

4. Conclusions and Limitations

The research presented in this paper has made it possible to clarify the evolution and bibliometric structure of the field of landscape and tourism, which is highly complex due to the multiplicity of themes, approaches and the interdisciplinary nature of the field. Through this analysis, the two objectives pursued in this work have been achieved, and the main contributions can be summarized as follows:

First, the subject of landscape and tourism has been analyzed by a large number of authors, but there are few groups that specialize specifically in this field (87% of the authors have only published one article on this subject). It may be that this high dispersion has, in turn, been favored by the increase in grants and funding bodies for the works presented, which has led to an increase in the volume of publications on this subject over the last decade. An additional factor that reinforces this conclusion is that the journal with the greatest number of publications on the subject, *Sustainability*, is not a specialized journal on this particular subject, but the high number of publications is rather explained by the volume of articles the journal published annually.

Second, in terms of conceptual analysis, this increase in the number of publications in the last decade has been reflected in the increase in research topics dealing with landscape and tourism. The field has been opening up since 1992, with works focusing on various aspects, among which the themes of “heritage” (in a broad sense, but, above all, “cultural heritage”) and “national park” stand out as the driving forces. These themes have been the center of interest in the work and made the field more dynamic and developed. Possible emerging lines of study that can be configured as motors for the future are the “rural” and “spatial analysis” clusters.

This study constitutes a first bibliometric approach to the field of landscape and tourism studies, so this analysis is not exempt from certain limitations. There are geographical and language limitations that must be kept in mind, as this paper analyzed only the scholarly production indexed in the WoS. For future research, it is recommended that these results be compared with those from other databases such as Scopus or Google Scholar [66] and in languages other than English [68]. On the other hand, when carrying out a conceptual analysis of keywords provided by the authors, 455 articles belonging mainly to the early years of the discipline (from 1980 onwards) have not been analyzed. It would be appropriate for future research to carry out a concept mapping by authors or journals to include these articles. Finally, limitations intrinsic to the tool used, SciMAT, where the different grouping algorithms and similarity measures are selected at the discretion of the researcher [68]. In this sense, the authors have carried out an exhaustive review of the articles analyzed using a double peer review to try to minimize this limitation.

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