Journal of Infrastructure, Policy and Development 2024, 8(16), 8163.
https://doi.org/10.24294/jipd8163

Review

Soundscapes and sonicscapes in tourism: A decade of research insights from bibliometric analysis

Lóránt Dénes Dávid[1,2,3,4,5,*], Imre Varga[3], Norbert Beták[4], Moaaz Kabil[5,6], Amina Uaisova[7], Zhulduz Nizamatdinova[8], Aidarbayeva Aizada[9], Yerlan Issakov[10], Aigul Abzhapparova[11], Al Fauzi Rahmat[5,6,*]

[1] Institute of Rural Development and Sustainable Economy, Hungarian University of Agriculture and Life Sciences (MATE), 2100 Gödöllő, Hungary
[2] Faculty of Economics and Business, John von Neumann University, 6000 Kecskemét, Hungary
[3] Faculty of Social Sciences, Eötvös Loránd University, 9700 Szombathely, Hungary
[4] Faculty of Central European Studies, Constantine the Philosopher University in Nitra, 94901 Nitra, Slovakia
[5] Széchenyi István University, HU-9026 Győr, Hungary
[6] Doctoral School of Economic and Regional Sciences, Hungarian University of Agriculture and Life Sciences (MATE), 2100 Gödöllő, Hungary
[7] Department of International Tourism Management, Kazakh Ablaikhan University of International Relations and world Languages, Almaty 050022, Kazakhstan
[8] Faculty of Tourism and Languages, Caspian University of Technology and Engineering named after Sh. Yessenov, Aktau 130000, Kazakhstan
[9] Department of International Relations and Tourism, Caspian University of Technology and Engineering named after Sh. Yessenov, Aktau 130000, Kazakhstan
[10] Faculty of Natural Sciences and Geography, Abai Kazakh National Pedagogical University, Almaty 050010, Kazakhstan
[11] Department of Political Science and Political Technologies, Al-Farabi Kazakh National University, Almaty 050040, Kazakhstan
*** Corresponding authors:** Lóránt Dénes Dávid, david.lorant.denes@uni-mate.hu; Al Fauzi Rahmat, rahmat.al.fauzi@phd.uni-mate.hu

CITATION

Dávid LD, Varga I, Beták N, et al. (2024). Soundscapes and sonicscapes in tourism: A decade of research insights from bibliometric analysis. Journal of Infrastructure, Policy and Development. 8(16): 8163. https://doi.org/10.24294/jipd8163

ARTICLE INFO

Received: 23 July 2024
Accepted: 30 August 2024
Available online: 24 December 2024

Abstract: The soundscape studied has gained increasingly frequent attention across multiple disciplines, especially in tourism and leisure domain. While it has already indicated a unique soundscape provides dynamic and memorable tourism experiences, a clearly mapped perspective across different segmentations of soundscapes, both natural and acoustically created, remains missing. Therefore, a comprehensive mapping and review of soundscape studies is imperative to understand its implications for potential inbound tourism research in future. This article aimed to explore potential soundscape studies by assessing trends and developments in recent decades (2013–2023). We applied a bibliometric approach, using a PRISMA framework and under NVivo 12 Plus, VOSViewer, and Biblioshiny-R-Studio software as analytical tools. Significant yield discoveries showed that tourism soundscape research is undergoing steady growth, as evidenced by quantity of publications and citation trends. Single and multi-country international collaborations characterized by soundscape outreach research playing an influential role were highlighted. We identified multiple research themes, such as anthropogenic noise and music heritage, and pointed out how we approached this research from two perspectives: environmental/natural and manufacturing/acoustics. In our review, several keywords and predominant themes were identified, which suggested soundscape studies have recently become an increasingly popular topic in tourism research. The broad spectrum of key themes, such a tourism, tourists, sustainability, areas, and development perspectives, are evidence points of significant diversity in these topics. Most importantly, our research offers significant theoretical and conceptual implications for future direction of soundscape studies. We identified three originality main focus domains in soundscape tourism research: urban and natural environments, technological advancements, and tourists' perceptions and behaviors.

Keywords: tourism soundscape; sustainability; landscape; nature; acoustic; bibliometric

1. Introduction

The study of soundscapes and sonicscapes has emerged as a significant area of research in the tourism industry in recent years, offering new insights into how auditory experiences influence tourist intentions, tourist satisfaction, tourist participation, destination quality, and perception (Liu et al., 2018; Lu et al., 2022; Jiang et al., 2018; Jiang and Yan, 2022; Yimprasert et al., 2021; Zuo et al., 2020). Soundscapes can be broadly categorized into two types: manufactured soundscapes, created using acoustic tools to manipulate environment, and natural soundscapes, which consist of naturally occurring sounds (Schulte-Fortkamp and Jordan, 2023). Kang et al. (2016) offer a thorough terminological framework to comprehend soundscapes, emphasizing the impact of socio-cultural backgrounds, acoustic environments, and even noise pollution like traffic noise on manufactured soundscapes. In contrast, a natural soundscape consists of birdsong, water flow, wind, and other ambient sounds. The term 'sonicscape' is also often used interchangeably with soundscape, which emphasizes the artistic and design aspects of soundscapes, including the engagement of users' sensory experiences and how audio mediation is used to highlight the sonic landscape characteristics of a particular location (Galloway, 2017). In tourism studies, soundscape preferences are increasingly recognized as shaping preferences and the overall experience, such as exploring visitors perceived sound quality as a critical sensory dimension at destinations (Liu et al., 2018).

Soundscape research has emerged as a valuable tool across a range of disciplines, more so about tourist destinations, where it has offered valuable insights into a destination's historical and cultural significance, as well as providing mental health impact assessments, soundscape conservation efforts, economic sustainability, and noise pollution assessments. In historical and cultural studies, soundscapes serve as a memory of a place, enhancing the attractiveness of a destination and its associated activities and artifacts (Zhao et al., 2023). Religious destinations also feature soundscapes, positively impacting visitors' mental well-being (Zhang et al., 2022). In protected areas, soundscape studies have also assessed the frequency of human-generated sound and its potential impact on wildlife in nature (Gale et al., 2021).

Similarly, marine soundscapes study the effects of noise generated from shipping traffic, with noise pollution posing a significant threat to marine resources (Jones et al., 2023). In this case, underwater noise affects various coral reef organisms (Ferrier-Pagès et al., 2021). Hence, this informs the need for noise pollution assessments, which help identify areas that require protection (Bernat, 2013). Soundscape studies in the field of tourism economics also contribute to the sustainability and attractiveness of tourist destinations and increase their economic value (Wu et al., 2021). Likewise, there is also evidence that tourism soundscapes contribute towards enhancing tourist destination appeal, bolstering local community economies, and driving regional revenue growth (Rahmat et al., 2024). Relevantly, in the city of Cáceres (Spanyol), there is a policy of restrictions on the use of vehicles in medieval historical sites (Barrigón Morillas et al., 2013). In essence, the tourism sector has emphasized the role of soundscapes in relieving visitors' psychological stress (Guo et al., 2022). For instance, the presence of these soundscapes confirms one's religious experience and involves sensory experiences; hence, these two experiences, primarily sensory

experiences, can be an essential component in assessing tourist satisfaction (Ivona and Privitera, 2019).

The dynamics of soundscapes emerge during peak tourist music, often with inadequate sound management (Grguric, 2020). Soundscapes, such as those for historical tourism, foster attachment to a place and positively correlate with place satisfaction, according to Zhao et al. (2023), this means an upbeat soundscape is the most critical factor in promoting comfort in historic places (Montazerolhodjah et al., 2019). It must maintain and preserve the existence of soundscapes to prevent their endangered status, as the sounds that sustain cultural sites, such as traditional singing and music accompanied by acoustic instruments of indigenous people, are crucial components of their identity and culture (Zhao, 2009). Alarmingly, the pressure of road traffic and tourism affects diverse and unique characteristics of the soundscape, leading to noise hazards (Bernat, 2013). Therefore, conservation and revitalization efforts are a highly concern, especially for tourist destinations that want to preserve cultural uniqueness. Another case that is essential for the marine sector is that tourist destinations have spread to some sandy beaches; these locations have a density of biological biota and species because the soundscape, especially acoustics, provides noise pollution for tourism activities (Minier et al., 2023).

Regardless existing soundscape's composition, be it natural, mixed, or anthropogenic, the tourism sector can develop it sustainably through the soundscape. Given its numerous opportunities for tourism, recreation, and sustainable development, it is crucial to prioritize acoustic environment management and soundscape planning. Some of the outstanding literature has highlighted numerous intersections between soundscape studies and tourism. This needs serious attention to develop publications of studies conducted, given the pattern in mapping issues and predicting advanced critical terms from the landscape literature. Although the documentation of previous research is not much explored in worldwide literature, so it still requires exploration and can yield valuable findings for developing soundscape literatures. As such, this research aims to bridge the gap by analyzing the development of soundscape and sonicscape studies in the tourism sector using the matrix approach. The questions encapsulated in the findings are as follows:

Q1: Identify the extent of development and impact of soundscape and sonic scape literature in tourism over the decade (2013–2023).

Q2: Explore the extent of the trajectories of key terms, themes, factors and thematic in developing soundscape and sonicscape literature in tourism in a decade (2013–2023).

Q3: Analyze three key focus areas, challenges, and future studies for soundscape and sonicscape literature in tourism in the following decade (2013–2023).

2. Materials and methods

2.1. Data collection and statistics

The academic Scopus database provided the data for this study. This paper has been organized using the PRISMA framework, see in **Figure 1**, classified by title-abstract-keyword, which is "sound" OR "soundscape" OR "sonic" OR "sonicscape" AND "tourism" which is limited to one decade in 2013–2023, and selected for

document type "article" and source type focus on "journal", finally with a language limit of English. We conducted the analysis on 25 June 2024. We collected 395 pieces of literature and stored it in Bib.text format for the data analysis tool to process.

2.2. Data analysis

A total of 395 literature were analyzed as a bibliometric study with three main applications, namely the Bibliometrix package through Biblioshiny-R Studio. This software can propose advanced coding in finding core findings (Dervis, 2019; Moral-muñoz et al., 2020). In specific queries such as in time slice of document, impact, and dynamics of source, there-field plot, clustering algorithm, a conceptual structure including a thematic map and factorial analysis. The second analysis tool is VOSViewer, where this application is believed to be able to create a map connecting two items, namely publications and terms (Van Eck and Waltman, 2019). We represent this using a network and an overlay, each with a color classification specific to the selected network. Finally, we also used the NVivo 12 Plus. This platform can also be used to identify common themes, develop frameworks based on themes or concepts, and search for gaps in the literature (Phillips and Lu, 2018). We have used it to determine word frequencies, find thematic gaps, and develop frameworks for soundscape and sonicscape in tourism.

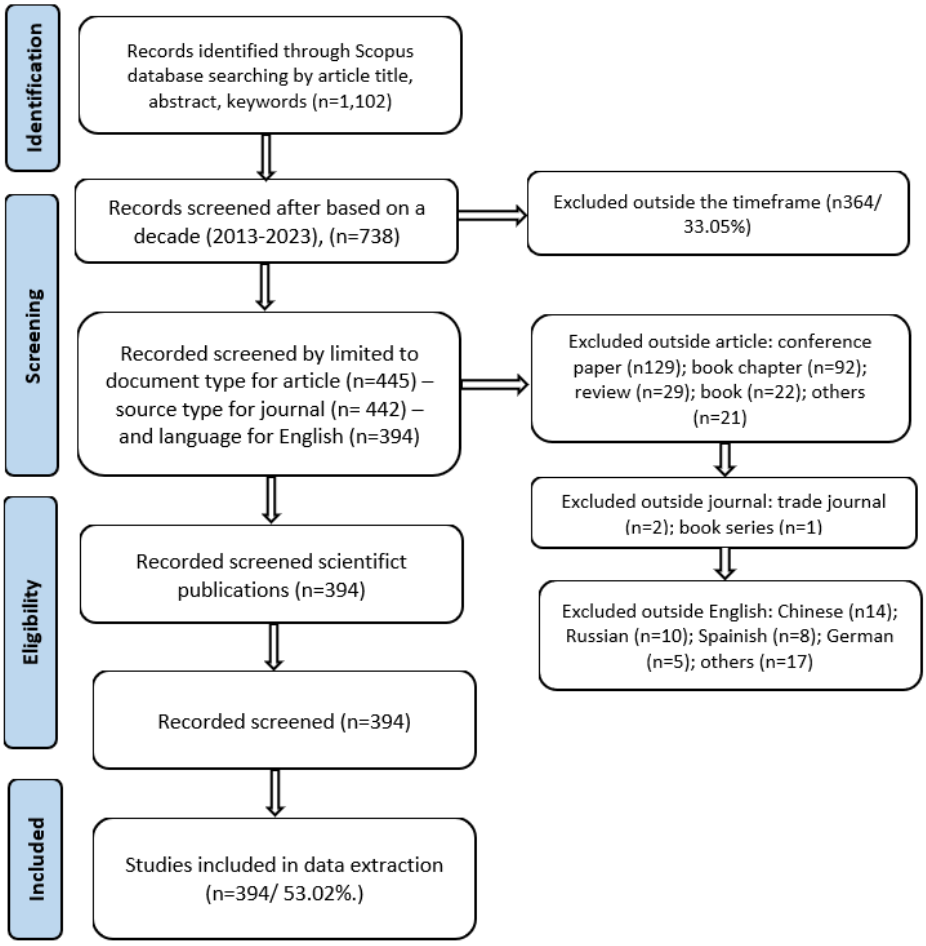


Figure 1. Scientific document selected by PRISMA framework.

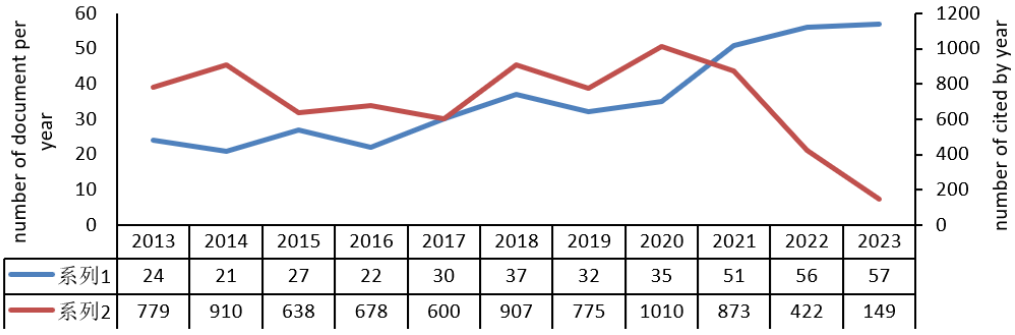
We worked to select scientific documents from PRISMA, see **Figure 1**, based on the initial findings, we identified 738 scientific documents or 67.38% for the last decade (2013–2023) from the initial total based on article title, abstract, and keywords. After screening, we found n = 394 results from results that only have three articles, journals, and English. The final eligible result is n = 394 journal articles. This total is 53.02% of the total scientific publications in a decade (2013–2023), and we consider that it is possible to represent the literature in a decade to find research insights, status, and highlights of the scientific journey of soundscape and sonicspace.

3. Results and discussion

3.1. Growth in research output

An annual review of scientific publications serves as a valuable indicator of progress and growth rates in a particular field of study. This is especially true for specialized areas such as soundscape and sonicspace in tourism. By examining publication trends, this study was able to identify focus areas and assess their potential for further quantity exploration. In addition, by considering the impact of publications over time slices, it can also establish a correlation between the frequency of publication quantity and citation impact.

The line graph, **Figure 2**, illustrates the significant increase in the output of soundscapes and sonicscapes studies in the tourism sector between 2013 and 2023. The y-axis shows two sides, where series 1 (blue line) corresponds to the total publications and series 2 (orange line) represents the total citations of all documents published in a given year. While the y-axis represents the publication time duration of the topic. The data points for each year as a whole show a steady increase over time, which peaks in 2023 with 57 publications, but the last two years do not show a significant increase, as has happened from 2020 to 2021 with an increase in the number of publications by 16 documents. It also underlines the citations obtained each year, where the most impactful years are documents published in 2020 with 1010 citations followed by documents published in 2014 with 910 cited. As a result, the data on the number of documents published each year and the number of citations obtained has illustrated that the impact identifies the successful growth of soundscape and sonicspace studies in tourism.



	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
系列1	24	21	27	22	30	37	32	35	51	56	57
系列2	779	910	638	678	600	907	775	1010	873	422	149

Figure 2. A decade of soundscape and sonicscape tourism publications with citation.

Source: Scopus database, compiled by authors, citation has compiled on 25 June 2024.

3.2. Author collaboration analysis

This section explores the patterns of collaboration among authors in soundscape and sonicscape tourism research. **Figure 3** illustrates five different collaboration clusters, represented by different colors. For example, the yellow cluster, centered on "Anfuso, Giorgio", connects with other researchers in the red cluster, such as "Burnham, Rianna E." Similarly, the blue cluster, including "Seekamp, Erin", intersects with the yellow and red clusters, indicating cross-collaboration. Interestingly, the green cluster, with "Zhang, Jie" as a key figure, collaborates with researchers from the blue, red, and purple clusters. However, authors from the purple cluster mainly collaborate with those from the green and blue clusters, and have no connection with the red and yellow clusters. This suggests that while soundscape and sonicscape research shows diverse patterns of collaboration, including cross-cluster collaboration, there is still room for further connections to foster growth in this area.

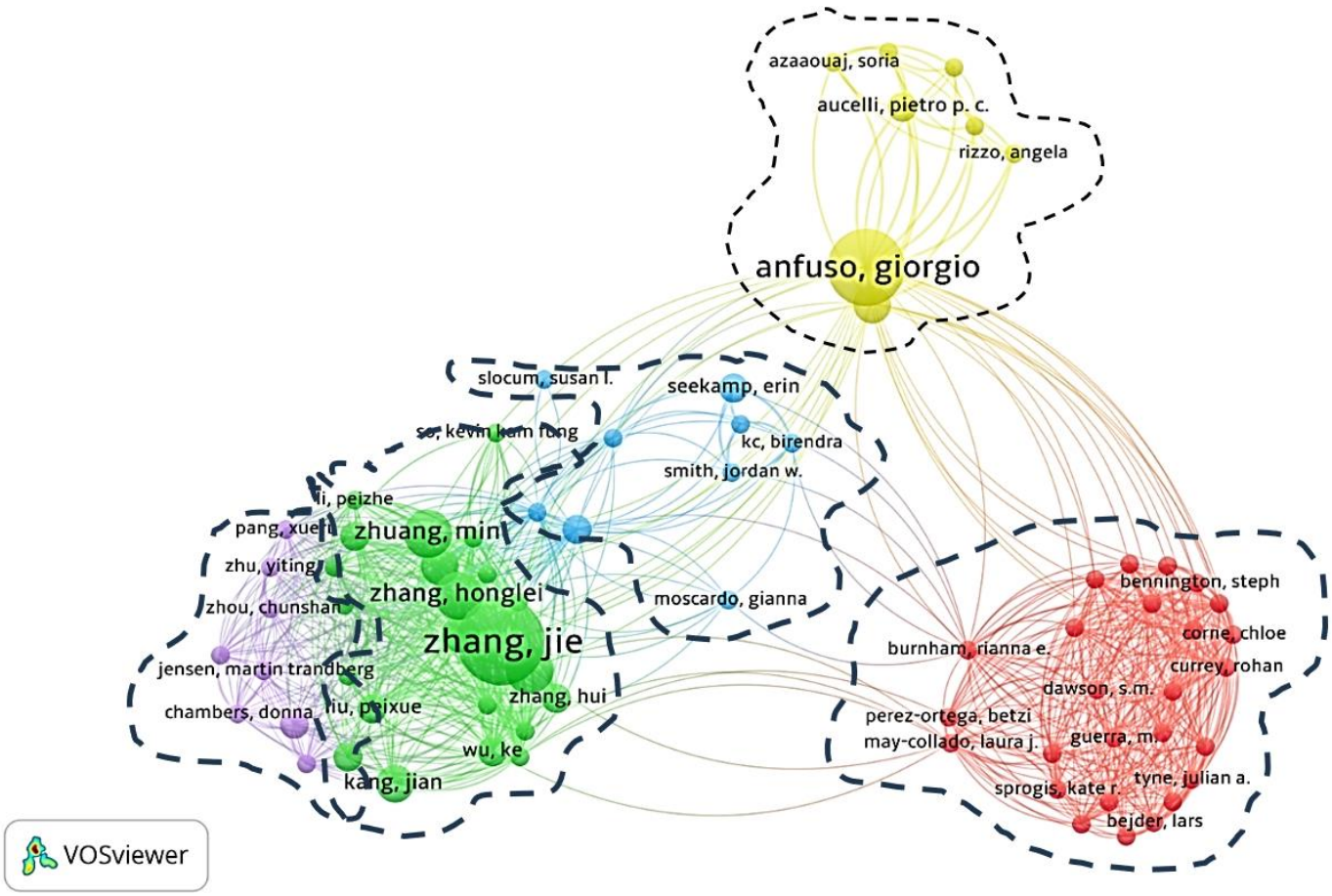


Figure 3. Co-occurrence authorship collaboration.
Source: Own authors.

3.3. Source, country, and there-field plot

This section explores the frequency of soundscape and sonicscape research in tourism studies over a decade (2013–2023) through three analyses: source, country, and three-field plot. The first analysis examines the source of publications, identifying journals that concentrate on this specific topic. This allowed us to understand the purpose and scope of the existing research on specific sources. Secondly, the article

explores the geographical distribution of research by analyzing which countries publish the most research in the specific field, which helps us identify regions that have a high concentration of knowledge on soundscape and sonicscape studies in tourism, and territories that have generated cross-country collaborations with researchers from outside countries. Finally, the three-field plot visualizes the intersection of author keywords as well as publication location. This analysis aims to identify which journals frequently publish soundscape and sonicscape research in tourism studies with specific keywords from leading authors in the field.

Table 1 shows the ranking of the top ten sources for soundscape and sonicscape publications in tourism studies, however, the number of publications a source has does not necessarily correlate with the number of citations. Interestingly, only 5 sources appear in both the top ten publications and citations. For example, "Tourism Management" leads in terms of publications (n = 19) but not in terms of citations, while "Journal of Sustainable Tourism" takes the top spot in terms of citations (n = 944). The two giants swap positions, with "Current Issues in Tourism" coming in third for publications (n = 9) but dropping to seventh for citations (n = 203). Similarly, "Tourism Management Perspectives" came fourth in publications (n = 8) and fifth in citations (n = 281), followed by "Frontiers in Marine Science" sixth in total publications (n = 6) and tenth in citations with (n = 116). An interesting trend emerges when examining the number of citations: some sources such as "Sustainability (Switzerland)" (n = 324) and "Journal of Travel Research" (n = 299), are not among the top ten most published journals, yet these two sources are ranked third and fourth respectively for the number of citations. This shows that while these journals may not publish many articles, the articles they do publish are highly influential in the fields.

Table 1. Most relevant source.

NP	Source	Rank	Rank	Source	TC
(19)	Tourism Management	1	1	Journal of Sustainable Tourism	(944)
(12)	Journal of Sustainable Tourism	2	2	Tourism Management	(689)
(9)	Current Issues in Tourism	3	3	Sustainability (Switzerland)	(324)
(8)	Tourism Management Perspectives	4	4	Journal of Travel Research	(299)
(8)	African Journal of Hospitality Tourism and Leisure	5	5	Tourism Management Perspectives	(281)
(6)	Frontiers in Marine Science	6	6	Annals of Tourism Research	(239)
(6)	Journal of Environmental Management and Tourism	7	7	Current Issues in Tourism	(203)
(5)	Marine Policy	8	8	Plastic and Reconstructive Surgery	(176)
(5)	Plos One	9	9	Marine Ecology Progress Serries	(138)
(5)	Tourism Studies	10	10	Frontiers in Marine Science	(116)

Source: Scopus, compiled by authors.
Note: NP = number of publication and TC = total of citation.

In the following, this article has explored how different countries collaborate on soundscape and sonicscape studies in tourism, see **Figure 4**. These collaborations can involve researchers from a single country (SCP: single country publication) or from multiple countries (MCP: multiple country publication). This study found that China published the most papers (n = 49), followed by the United States (n = 41) and Australia (n = 21). Interestingly, although most countries favored single-country

collaboration over multiple-country collaboration, some countries such as Indonesia (n = 5) and Malaysia (n = 4) only published articles through single-country collaboration without involving outside countries.

Diving deeper, **Figure 5** reveals a three-way intersection between author, keywords, and source. Here, "Zhang J" stands out for using many keywords that converge on "soundscape". Other authors, such as "Zhang H" and "Hu M", also prominently use "soundscape" as a keyword in their publications. Interestingly, the analysis also shows a spread of keywords across terms such as "tourism", "sustainable tourism", "rural tourism" and "sustainability". This spread reflects the diversity of keywords that can be published in sources that share the same theme and scope in which these studies appear, including journals on "Sustainability (Switzerland)", "Journal of Sustainable Future", "Tourism Management" and "Tourism Management Perspectives". However, it should be noted that the use of keywords can vary, leading to seemingly random associations in the data sources collected by the algorithm.

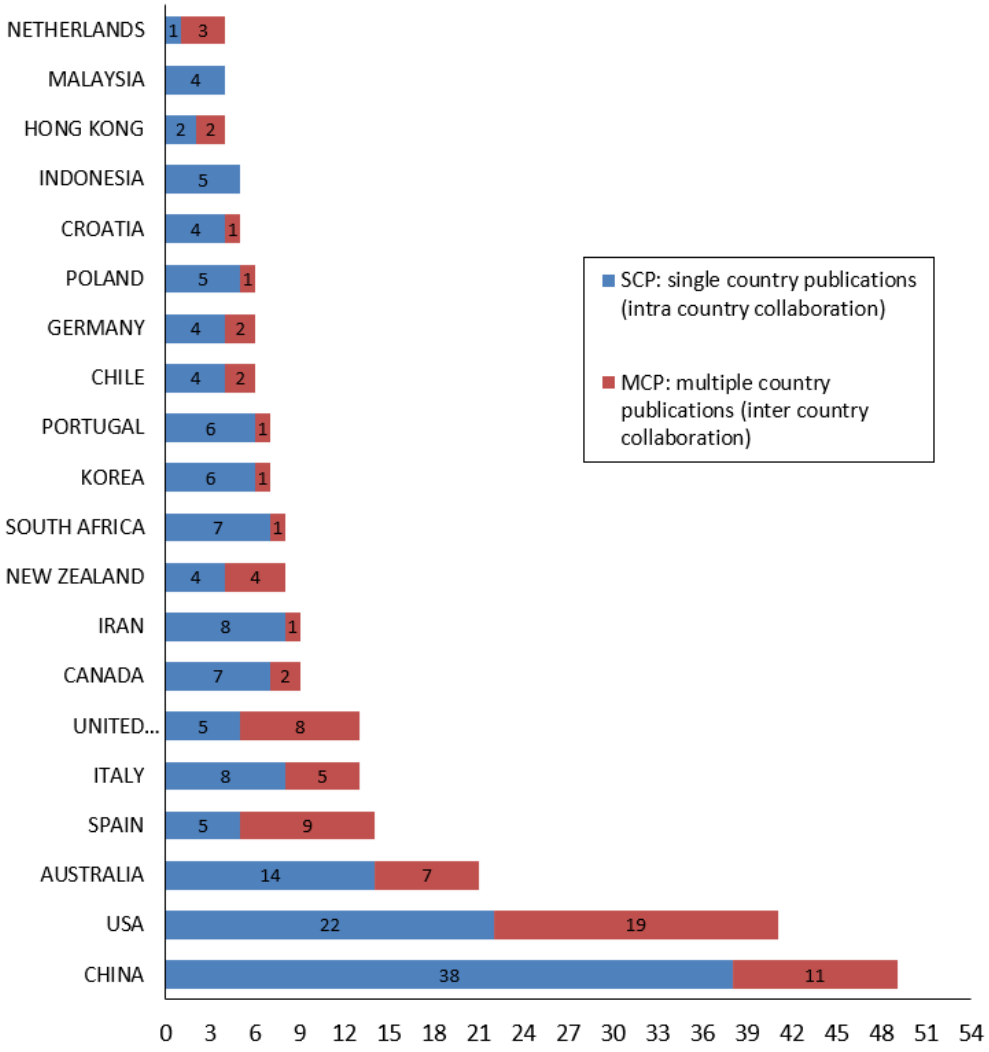


Figure 4. Most twenty productive countries.

Source: Scopus, compiled by authors.

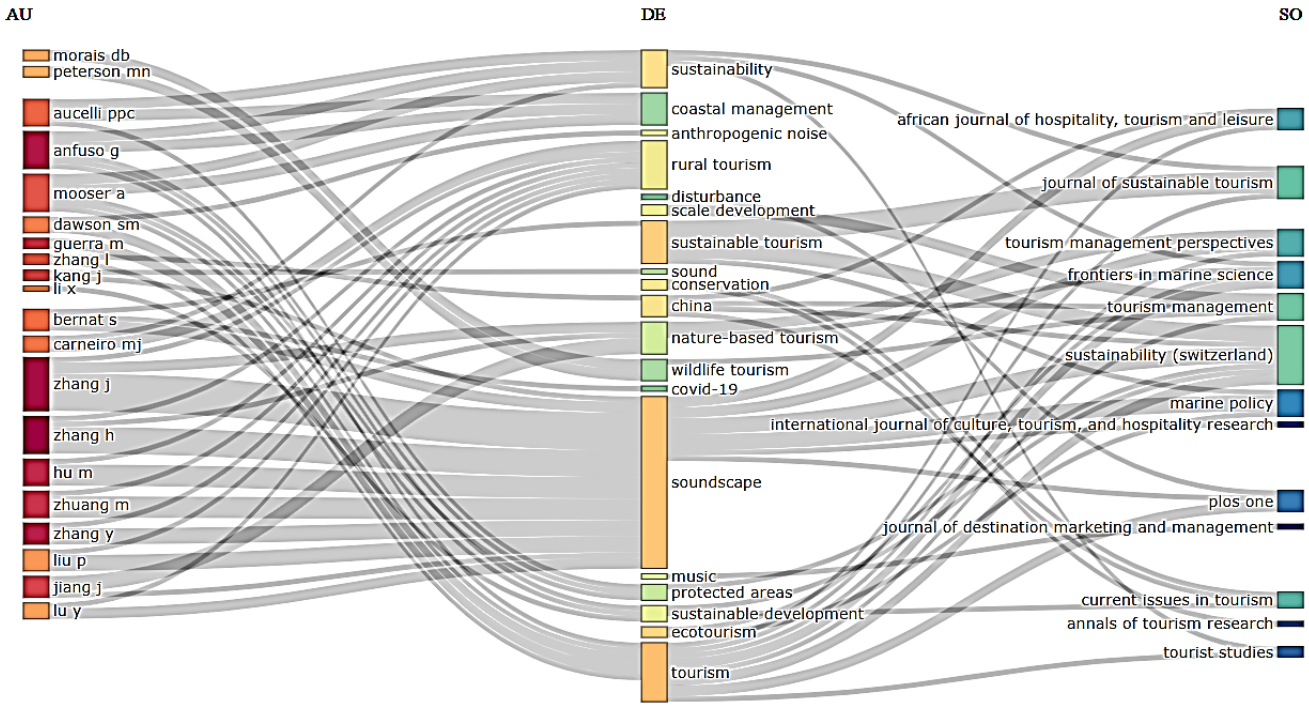


Figure 5. There-field plot on soundscape and sonicscape in tourism literature.

Source: Biblioshiny analysis, compiled by authors.

3.4. Interdisciplinary nature and key driving terms

This section, represented by **Figure 6**, illustrates ten academic fields that contribute to the study of soundscapes in tourism. This allows for a deeper understanding of how the intersection of soundscape studies in tourism contributes to different disciplines. This attention is driven by various factors, including topics that intersect with specific disciplines, as well as approaches as well as methodologies for understanding soundscape studies in tourism.

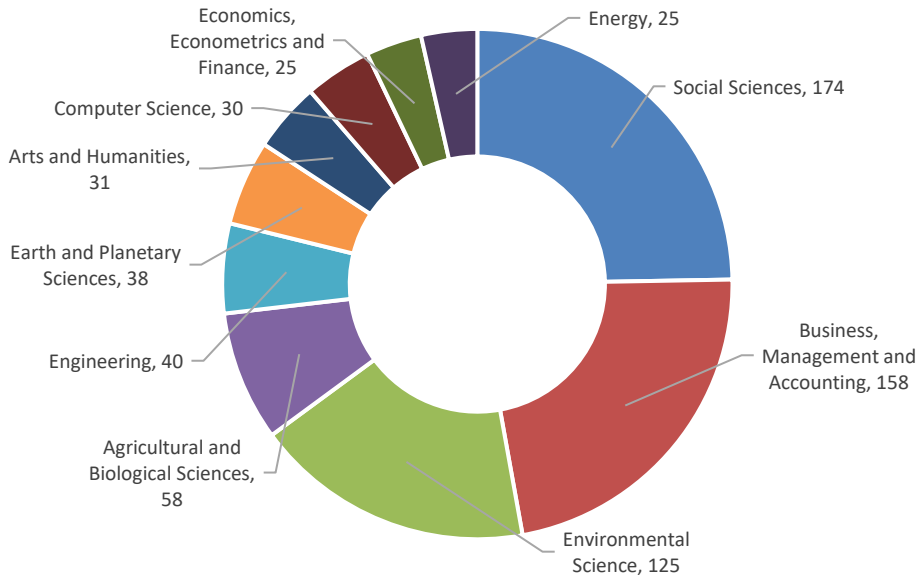


Figure 6. Ten most of discipline studies area of soundscape in tourism literature.

Source: Scopus, compiled by authors.

Figure 6 Shows that the social science discipline has the highest concentration of soundscape studies in tourism (n = 174), followed by the business, management, accounting discipline (n = 158). Agricultural and biological sciences received 58 publications, while engineering was limited to 40 publications. Earth and planetary sciences (n = 38), then arts and humanities (n = 31), computer science (n = 30), and economics, econometrics, and finance (n = 25).

Some representative articles discussing the study of soundscape and sonicscape in the field of social science examine how soundscapes can influence tourist behavior and intention with a particular focus on nature-based tourism (Jiang, 2022). In the social sciences, research has also been conducted on the role of music as a beneficial resource in the development of a tourist destination's identity. In such studies, music is often utilized to provide an aesthetic interaction between tourists and the destination in various contexts (Mason, 2004). Furthermore, social science disciplines highlight the existence of studies that demonstrate the significance of soundscapes in promoting sustainable development in tourist destinations (Qiu et al., 2018). This indicates that there is a mutually beneficial relationship between the perception of soundscapes and landscapes (He et al., 2019). In turn, soundscapes positively influence memorable tourism experiences, satisfaction, and e-WOM (Kankhuni and Ngwira, 2022).

It is also noteworthy that soundscape and sonicscape studies are distributed across a number of other disciplines, including business, management, and accounting. For example, one study has examined the management model for music victimization in tourism, which has provided insights into the design of an audio management scenario. A management model based on synergistic networks is proposed to diversify the attractiveness of music offerings and create integrated tourism products. This suggests that music has a considerable impact on the tourist experience (Grgurić and Stipanović, 2021). Moreover, studies in the field of environmental science underscore the significance of acoustic environment management, where soundscape planning assumes particular importance for tourist destinations, particularly with regard to geophysical and biophysical natural sounds. The soundscape expectations of tourists include the sounds of springs and streams, bird songs, and the sound of waterwheels (Chen, Yu, et al., 2021). Furthermore, the sound environment provides value for the development of a destination's cultural identity (Huang and Kang, 2015).

3.5. Identify factorial using multiple correspondence analysis

We used factorial analysis, see **Figure 7**, on the topic of soundscape and sonicscape in tourism, this approach as one of the statistical procedures to identify the smallest number of factors that can represent the relationship between variables. In factorial analysis **Figure 7**, we used multiple correspondence analysis. The relative position of the points and their allocation along the dimensions provide insight into the results obtained, the analysis resulted in three clusters, the red cluster contains keywords such as tourist attraction, tourism behavior, tourist destination, perception, china, and tourism management. Then, the purple cluster contains keywords such as acoustics, tourism, environmental protection, biodiversity, and anthopogenic effects. Furthermore, the green cluster is represented by tourism development, sustainable development, ecotourism, protected area, sustainability, urban area, and coastal area

management. As a result, the three clusters have a distance from the coordinate center. By visualizing the keyword hierarchy, it is clear that the green cluster is the largest cluster with a relatively close distance to the red and purple clusters and the largest distribution of keyword representatives.

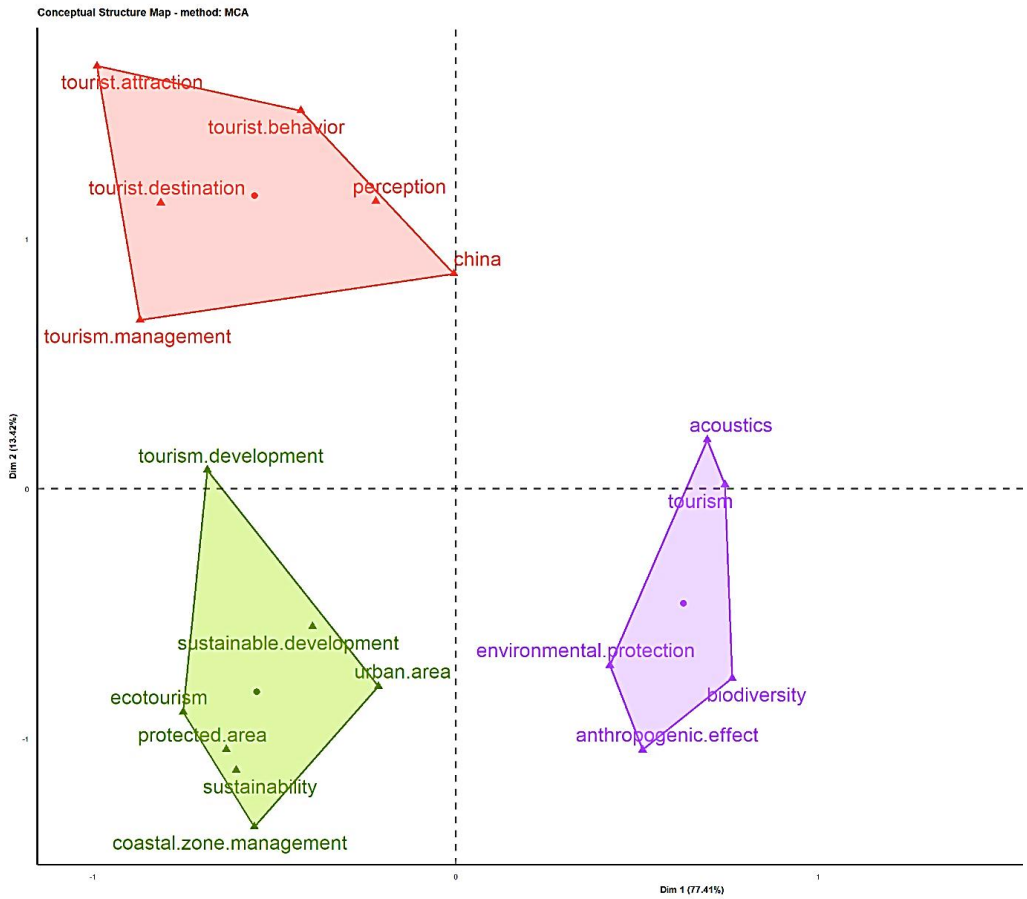


Figure 7. Factorial analysis used multiple correspondence analysis.
Source: Bibliometix, R-studio, authors result.

First, the highlight of the important part of the blue cluster has represented some important terms in the study of soundscape and sonicscape, where acoustics, play an important vitality in the landscape of sustainable tourism and become a construction of the destination, which provides peace and tranquility as evidence of the presence of humans and the environment in recreation sites (Chen, Zhang, et al., 2021), so that the presence of acoustics needs attention in planning and management management as a soundscape in tourist destinations (Chen et al., 2021). Acoustic monitoring systems for improving the conservation status of animal populations in conservation (protected) areas need to be highlighted, especially in areas with high levels of tourism activity (Brunoldi et al., 2016). Importantly, it is necessary to maintain biodiversity in the long term, due to the large amount of land use for the massive tourism sector (Rodríguez-Rodríguez, 2012). In the red cluster, such as behavioral tourist intentions have contributed to influencing the experience in soundscape tourism (Lu et al., 2022). Perception, where previous studies imply that in terms of perception the presence of soundscape tourism has different development per village, where the transition of soundscape tourism adoption is a phase of further development of the original

destination, so that the involvement of native and artificial sound environments becomes an element for tourism (Zuo et al., 2020). Another study examined the perception of natural soundscapes as having a memorable influence and satisfaction on tourists (Kankhuni and Ngwira, 2022).

Furthermore, in the green cluster section, there is the term coastal zone management, precisely in coastal areas, many tourist destinations are developing, utilizing resources such as the presence of dolphins that produce unique sounds making them a target for tourism (Heenehan et al., 2017). With this coastal wealth providing ecological distinctiveness with emerging sounds, the need for potential management in achieving an understanding of the dynamics of the coastal system and other important components that are utilized for mass tourism (Farina and Pieretti, 2012). In addition, the term urban area, is also mentioned in several studies, such as the problem of noise in urban tourism caused by the use of music in tourism and seeks to highlight the need to develop audio management (Grguric, 2020), such as city parks, tourist attractions, and historical areas) along with the influence and preferences for various types of soundscapes (Yang and Lu, 2022).

3.6. Thematic map analysis

In this thematic analysis, four parts are highlighted, which consist of nichel themes, motor themes, basic themes, and emerging or declining topics. From the study (Kaiser and Kuckertz, 2023) provides a brief explanation, which niclel themes have topics that have little relevance to the research field, but have relationships with other topics of low relevance, then motor themes represent topics that are very important to the research field and well developed. Basic themes are less developed but equally important, and emerging or declining themes are topics that are underdeveloped and relatively unimportant.

Figure 8 has represented four sections that are connected in two axes and also have a center point, this attention for the x-axis represents the degree of relevance of a topic, while the y-axis indicates the stage of development degree. The visualization in the motor themes section consists of soundscape, rural tourism, music, tourism, sustainable tourism, and sustainability. Some of these terms have a high strength of relevance and are very important topics. This indicates that the study of soundscape tourism in rural areas has a high degree of relevance which in this case is also supported by several topics on economic growth, environmental degradation, and Iceland, broadly speaking the topic of soundscape tourism in rural areas has an influence on improving the economy of the community and also land degradation, so this is important to highlight for the ecosystem service and protection areas mentioned in the basic themes.

Issues that need to be developed in this study are also highlighted in emerging or declining themes represented by sensory marketing, competitiveness, and medical tourism, environmental impact. This attention needs to be highlighted where the issue of soundscape in tourism needs a study of competitiveness and attention to environmental impact and sensory marketing, especially in medical tourism, which is a new issue that needs to be explored in the study of soundscape in tourism.

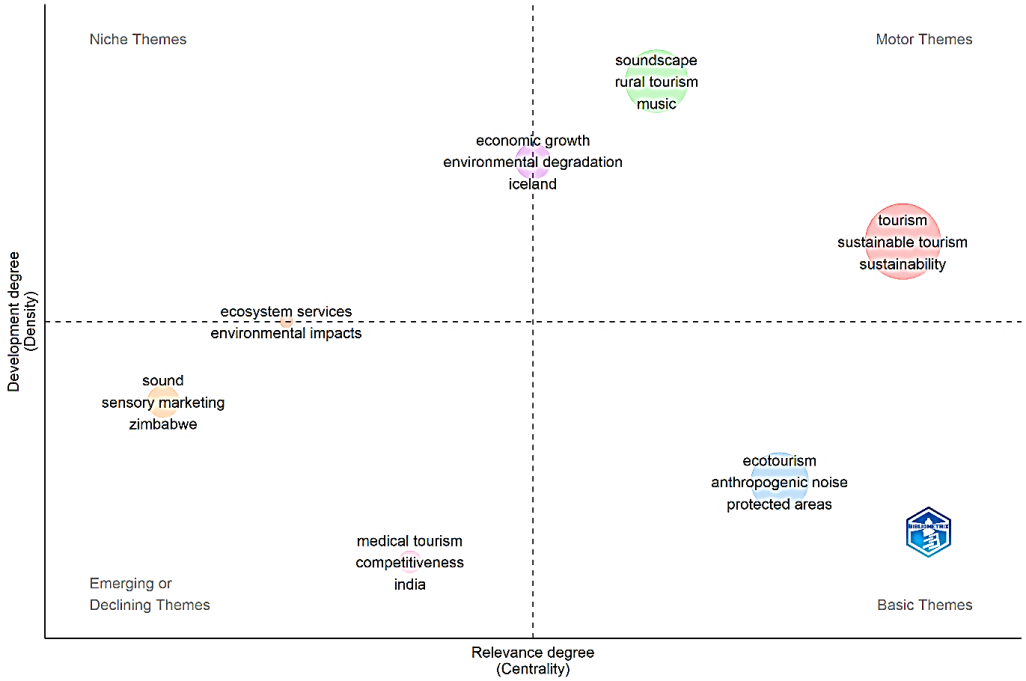


Figure 8. Thematic analysis in soundscape or sonicscape in tourism.
Source: Bibliometrix, R-studio, authors result.

3.7. Analysis of keywords

This section describes three keyword analyses, namely network visualization which aims to see the relationship between one keyword and other keywords, this is an effort to see the keyword gaps that exist in soundscape studies in tourism literature. Next is an overlay study to see changes in keywords or keywords that dominantly appear in the year represented, so that this can provide insight for the representation of keywords in subsequent years with certain issues.

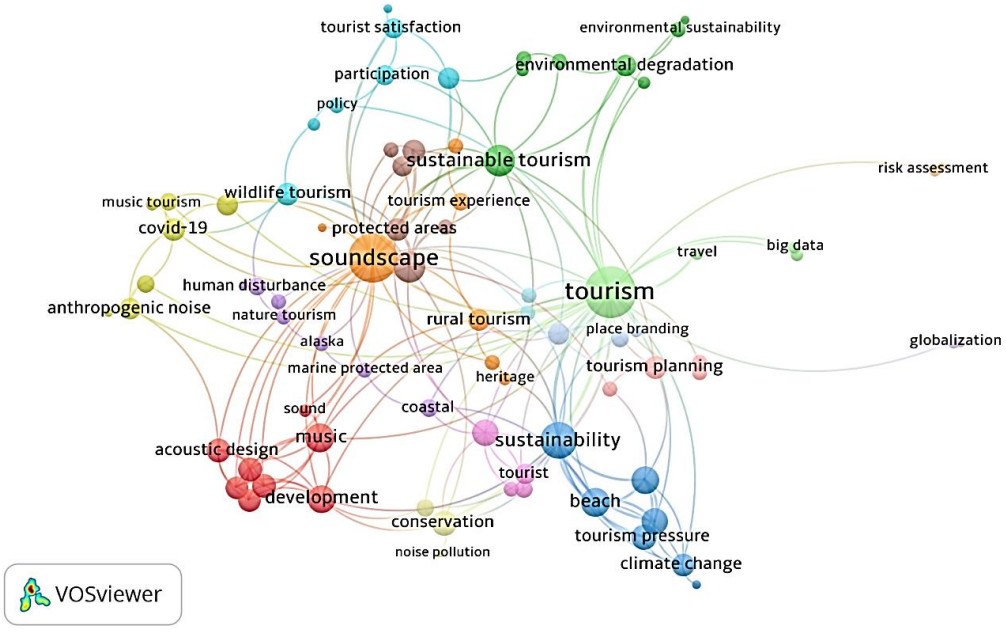


Figure 9. Connection among keywords that appear in soundscape in tourism publication.

Figure 9 represents the relationship between keywords, which reveals visually that there are keywords that are interconnected or not at all, this attention provides a highlight of weak keywords and can even be presented as gaps that appear in keywords. For example, some of the words that can be paraphrased in the findings are the term "soundscape" has a close relationship with the keywords protected area and tourism experience, to rural tourism and heritage. Other terms also found relationships such as the word "tourism" which is directly related to sustainable tourism and environmental degradation as well as travel and big data are interconnected. In terms of the word "sustainability" provides a connection with the keyword development and conservation, even climate change. Interestingly, the terms risk assessment and globalization are visually distant from the others, meaning that these keywords still need to be linked with other terms in the provision of keywords, so that studies on soundscape or sonicscape in tourism destinations can represent the words risk assessment and globalization issues.

Figure 10 analysis of key words reveals how their prominence in the academic literature changes over time. For example, terms like "anthropogenic noise" and "music heritage" became popular around 2021. In contrast, "soundscape" appeared a year earlier, in 2020 (approximately). The increased focus on soundscapes in tourism research therefore points to the growing importance of the term in recent years, compared to previously established topics such as sustainable tourism and conservation. However, this attention also offers opportunities to explore the interconnections between keywords. In the case of soundscape, this could involve studying how anthropogenic noise and music within cultural heritage sites can be managed to create new forms of sustainable tourism and encourage environmental conservation in the surrounding region.

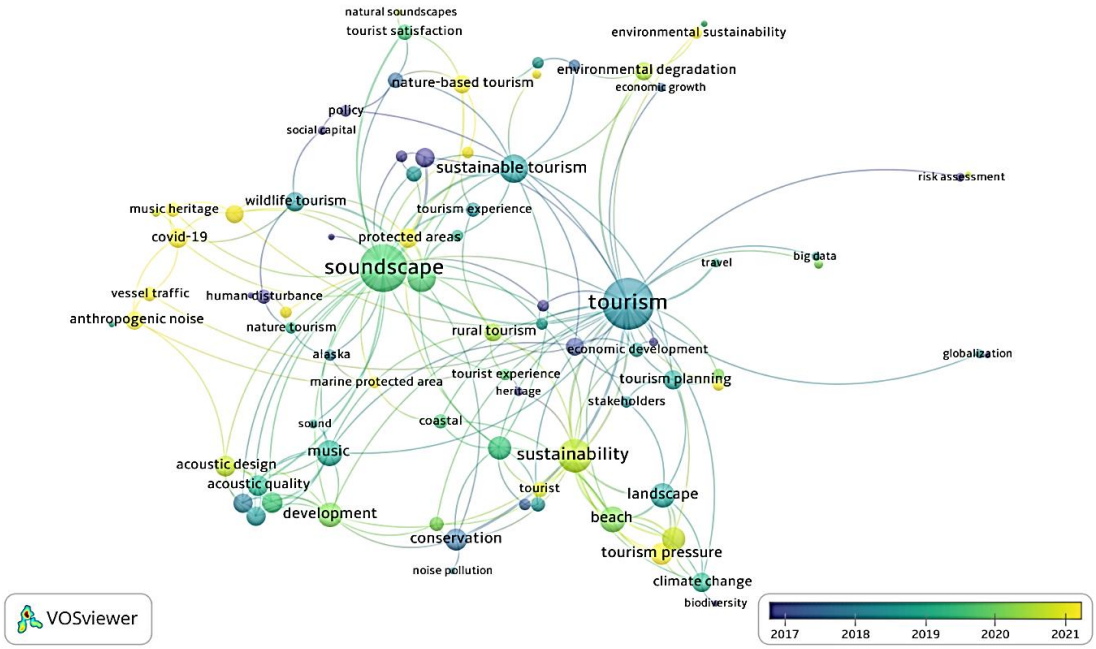


Figure 10. Keywords evolution map of soundscape in tourism publication.

3.8. Analysis of themes distribution of soundscape and sonicscape in tourism

Figure 11 illustrates the 23 items in five different groups. This coding scheme presents the most frequently used terms within each perspective. For example, the "tourist" perspective includes the study of tourism potential, tourist attitudes, tourist behavior, tourist experience, and tourist loyalty.

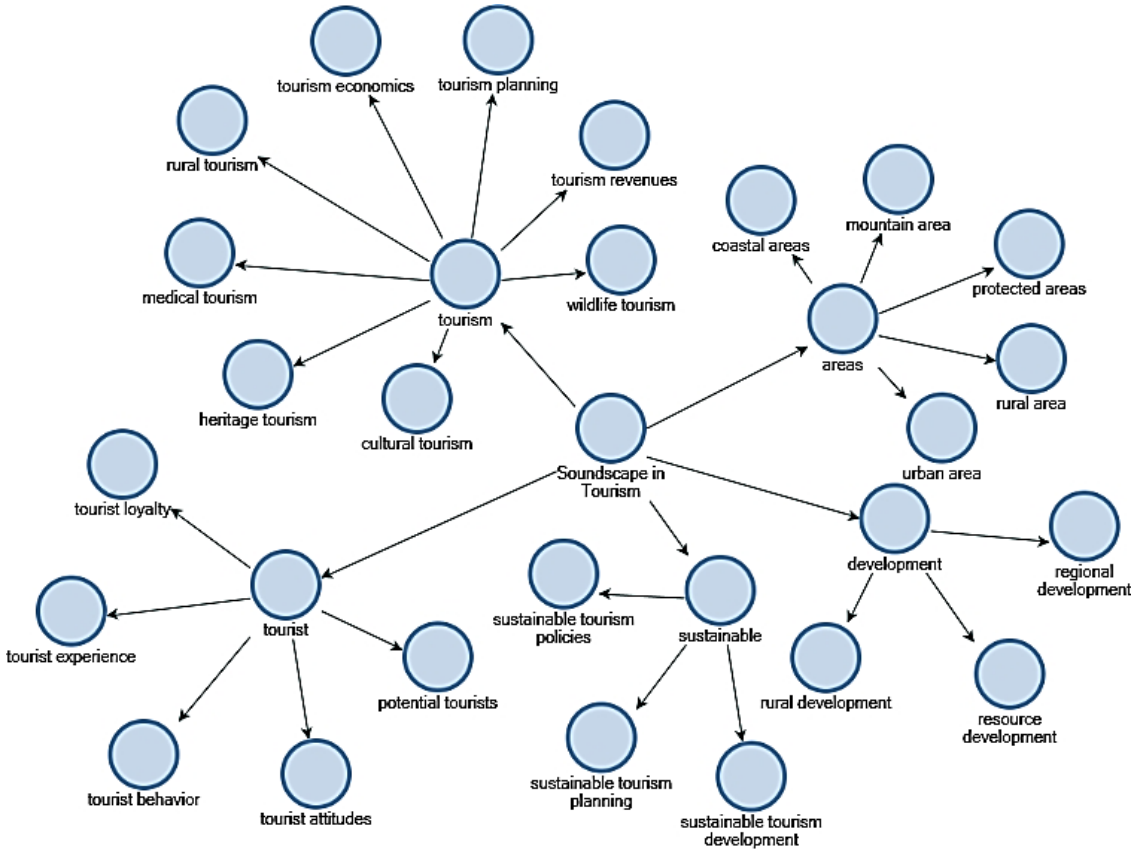


Figure 11. The most keyword's themes distribution in soundscape in tourism literature.
Source: Nvivo 12 Plus, own result by authors.

The "sustainable" perspective includes sustainable tourism planning, policy, and development. In contrast, the "development" perspective includes three terms: resource development, rural development, and regional development. The "region" perspective includes terms such as urban, rural, coastal, mountainous, and protected areas. Finally, the overarching term "tourism" covers most things, such as tourism planning, tourism economy, and tourism revenue. Within the perspective of "tourism", different types of tourism related to music landscapes in the tourism industry are identified, such as rural tourism, medical tourism, cultural heritage tourism, cultural tourism, and wildlife tourism. This focus highlights that the music landscape in the tourism sector has evolved into a diverse and multifaceted domain that encompasses a variety of tourism experiences.

4. Discussion

Among the findings, we intersect focus studies that have identified three main

areas of focus in soundscape tourism research: urban and natural environments; technological advancements; and tourist perception and behavior. As such, these themes provide a comprehensive framework for understanding soundscapes research, particularly in tourism.

4.1. Focus on urban and natural environment in tourism soundscape

Research generally focuses on two types of environments, urban environments and natural landscapes. Urban soundscape studies often examine the impact of noise pollution on traveler satisfaction and well-being (Kang and Schulte-Fortkamp, 2016). It provides significant and long-lasting noise discomfort in urban environments, especially in areas that are heavily visited by tourists (Hosseini and Kowkabi, 2023). For example, the effects of motor vehicle and car noise on acoustic comfort in the square area (Montazerolhodjah et al., 2019). In contrast, research on natural soundscapes emphasizes the restorative effects of natural sounds, such as birdsong and running water, on tourists (Buxton et al., 2021). As of this case, noise management, especially in protected areas, is essential to maintaining biodiversity and human experience (Francis et al., 2017). A study has shown that natural sounds, especially birdsong, have more preferred natural sounds, followed by water sounds and rain sounds, while the preferred mechanical sounds are singing, broadcasting music and live music, for the disliked or corny sounds are construction, nature, and grass cutting sounds (Liu et al., 2018). Therefore, studies on the presence of birds have a positive impact on the mental recovery of urban tourists, so a positive increase in bird populations in cities will increase their mental recovery capacity (Jahani et al., 2021). Also, the sound of musical singing highlights the aesthetic response and musical imagination that provides a stimulus bond between tourist destinations and tourists' behavioral intentions, and this segmentation becomes a new marketing in exploring the potential of musical soundscape in assisting the tourism industry in its development (Zhuang et al., 2023).

However, a review of the resulting sounds does not necessarily guarantee a sufficient improvement in environmental quality (Malec et al., 2023). But at least the resulting sounds of nature are less intrusive than the sounds of man-made technology (Brambilla et al., 2013; Turek et al., 2023). Looking deeper, it is even possible that the soundscape produced between humans and nature can provide a relationship path that is considered significant if the soundscape produced is positive, so it is important to encourage tourist destinations in both urban and natural environments for sustainable development in the sound produced (Qiu et al., 2018). Such as, preparing positive and effective sound resources in urban planning and soundscape design processes in outdoor environments (Rehan, 2016), even for natural sounds so that the resulting soundscape can significantly influence tourist visits and behavioral intentions in nature-based tourism (Jiang, 2022). Those multifaceted tourism landscapes offer prospects for innovation while raising awareness of sustainability issues (Rahmat et al., 2024). As a result, soundscapes in both urban and natural environments have the potential to create unique and memorable experiences for tourists, fostering stronger emotional connections with a destination and influencing their behavior. This concept

offers a new marketing approach for the tourism industry, which harnesses the power of soundscapes to enhance tourism development.

4.2. Technological advances to support tourism soundscape

The use of advanced technologies, such as geographic information systems (GIS) and sound mapping can provide a critical intersection between cartography and auditory narrative, allowing environmental maps and sound maps to illustrate complete landscapes (Lin, 2015). These tools also allow researchers to assess spatial and temporal variations in the sound environment and its impact on tourism. Which includes the creation of audio-visual tools that not only help the growth of the tourism industry but provide significant value to other subjects, for example the use of virtual reality technology as an evaluation tool on soundscape, this technology is able to predict noise and hide traffic noise (Li and Lau, 2020). Technological attention for soundscapes is also very important, where the creation of immersive virtual environment technologies allows identifying the types of sounds that positively or negatively impact the experience of individuals whose settings are simulated in outdoor recreation (Li et al., 2018). Proposed technology designs for the development of soundscapes are also found, such as the design of smart phone-based argumented virtual reality (AVR) technology development, the emergence of this tool due to many historical sights and soundscapes that are now starting to disappear, such as the sound of piano melodies, wave sounds, and church music that once satisfied local residents and tourists (Gallardo Vázquez et al., 2023; Lin et al., 2021).

Advances in technological tools that support soundscapes allow them to be increasingly highlighted. For example, a study revealed that the creation of mobile devices such as Mobile Phonse Sensing can be a sensing protocol to determine the noise data generated, which aims to be a public policy resource that contributes to public awareness and decisions regarding noise pollution (Lefevre et al., 2021). This attention can be adopted for the benefit of the tourism industry, which aims to help the tourism sector to increase its tourist attractiveness through detecting noisy sounds or making tourists comfortable. This is in line with a study, where to increase tourist interest and attractiveness, multimedia sound is needed, where this technology is designed to represent natural and even artificial soundscapes to make them more realistic, such as bird sounds in natural forests, traditional musical instruments, the sound of waves on the beach, to night sounds on the mountain so as to increase the marketing potential of tourist destinations (Heliades et al., 2017).

As such, sound technology can influence auditory tourism, or soundwalking, and the resulting soundscape can act as a bridge of interaction for visitors (Galloway, 2018). This is evidenced by other findings, where the use of audio augmented reality (AAR) systems showed a higher willingness of tourists to listen and re-listen to the soundscapes of medieval archaeological sites using AAR technology than without AAR (Sikora et al., 2018). Within careful planning and responsible implementation, sound technology can be a powerful tool for enhancing tourism experience, safeguarding the soundscapes of destinations with vulnerable status, and also promoting destinations responsibly.

4.3. Tourist perception and behavior in soundscape tourism

Several studies have investigated how soundscapes affect tourist perceptions and behavior. Many of the findings suggest that pleasant soundscapes can enhance a destination's appeal, while negative auditory experiences, such as flare pollution, can deter visitors and reduce their overall satisfaction. Research shows that tourists' perceptions of a destination's natural soundscapes (such as the sound of waves, birds singing, etc.) play an important role in driving their environmentally responsible behavior (Li et al., 2022). These behaviors include various actions such as respecting natural habitats, for example, Jiang (2022) revealed that tourists' interactions with natural soundscapes, such as listening to sound of waves, it can significantly increase their intention to behave in an environmentally friendly manner. As a result, behaviors attracted to natural sounds were heard as part of the recreational experience, with generally positive responses such as wind, water, bird, insect sounds (Gale et al., 2021). This means that attention needs to be paid to the planning and management of natural soundscapes such as geophony and biophony, as well as the sounds of springs and rivers, birdsong, and the need to reduce unwanted sounds, and protect and develop the richness of natural sounds (Chen et al., 2021).

In terms of destination participation and tourist behavior, there are studies that have shown soundscape participation significantly affects tourist satisfaction and in turn has positively increased tourist loyalty directly and indirectly to the soundscape (Jiang and Yan, 2022). This reveals that there is an explicit link between the human-environment relationship in this case the soundscape, thus the importance of soundscape to promote sustainable development, especially for tourist destinations (Qiu et al., 2018). Some of indicators found to positively influence visitors' perception of soundscape are tranquility, landscape aesthetics, and visitor satisfaction (Liu et al., 2018).

Perceptions of both natural and human-based manufactured soundscapes have been studied, which have a significant effect on the flow experience and memorable tourism experience, and the perception of natural soundscapes has a stronger effect on tourists' experience (Bai et al., 2024). Then, with regard to tourists' attitude towards the image of natural soundscape, it has a direct effect on tourists' satisfaction (Jiang et al., 2018). This is similar to the behavioral response of tourists to man-made geographical soundscapes, such as music has provided imagination and reinforced with soundscape place ties and increased behavioral intentions, however, musical landscape stimuli have different responses in tourist experiences and behavioral intentions (Zhuang et al., 2023), therefore choosing the right soundscape needs to be a consideration for visiting behavior, for example, the existence of tourist satisfaction and e-WOM from memorable tourist experiences (Kankhuni and Ngwira, 2022). So that a note for decision-makers needs to formulate relevant strategies for soundscape development in several recreational locations in accordance with the needs and expectations of the public for soundscapes (Fang et al., 2021).

4.4. Challenges and future directions

As tourist's interest in unique and authentic experiences grows, soundscapes are becoming increasingly important in tourism. Soundscape refers to the natural sounds

and artificial sounds that make up the sound environment. Over the past decade (2013–2023), research on soundscapes in tourism has grown rapidly (see **Figure 2**). This research has generated valuable insights into how soundscapes influence tourists' experiences, perceptions and behaviors. The subjective nature of soundscape perception, which varies greatly between individuals, poses a significant challenge in determining the ideal soundscape for all tourists, although research on this subject continues to grow. In addition, there is a need for a standardized methodology to ensure comparability between studies.

In a growing insight, this research has shown that soundscapes can play an important role in shaping a destination's image, a positive soundscape can enhance a destination's image as a fun and friendly place, whereas negative soundscape can decrease a destination's appeal. Then, increasing tourist satisfaction, where pleasant soundscape can increase tourist satisfaction with their experience at soundscape attractions. Furthermore, influencing tourist behavior, it can influence a tourist's choice to linger in the soundscape destination, visit certain integrated attractions, and return to the soundscape destination in the future. Finally, it enhances destination sustainability, in that a well-designed soundscape can reduce noise pollution and improve the life quality for local communities. Then, future research should integrate soundscape studies with other sensory dimensions of tourism, such as visual and olfactory experiences, to develop a holistic understanding of multisensory tourism. In addition, this concern also requires longitudinal studies to assess the long-term effects of soundscapes on tourist behavior and tourist destinations.

5. Conclusion

The bibliometric analysis highlights the growing importance of soundscapes and sonic landscapes in tourism research. This research contributes to developing more enjoyable and sustainable tourism experiences by increasing our understanding of the auditory dimension in tourism. As field develops, interdisciplinary collaborations and innovative methodologies will be crucial in addressing the complex interactions between soundscapes and tourism. Over the past ten years, academics have increasingly focused on soundscape studies in their publications, a trend that has significantly influenced the advancement of soundscape science by increasing the number of citations received each year. In this way, authors are also focusing on the dynamics of collaborative authorship. This trend extends from single-country publications to multi-country collaborations, with China showing particular interest in these collaborations. According to sources, "Tourism Management" consistently publishes soundscape studies, with the "Journal of Sustainable Tourism" having the most significant impact. Furthermore, the term "soundscape" leads the trend, but other keywords such as "tourism", "sustainable tourism", "rural tourism", "nature-based tourism" and "sustainability" also follow.

Disciplinary studies have also shown social sciences to be the leading discipline in the spread of soundscape studies. Factorial analysis has revealed a three-part pattern for some of its correspondents, and thematic divisions have resulted in many topics representing significant keywords rather than irrelevant keywords. Moreover, the relationship between keywords reveals soundscape tourism and sustainability as

prominent concentrations, with anthropogenic noise and musical heritage emerging as current issues that scholars have focused on in recent years for soundscape studies. We have discussed the implications of this research, highlighting how soundscapes shape urban and natural environments, the importance of advanced technologies, and the impact of tourist perception and behavior on the future of soundscape tourism. Our brief discussion addresses the challenges and potential future advances in this research.

However, originality of this study shows that soundscape tourism research analyzes technology, visitor behavior, and urban and natural settings. Significantly, urban soundscape studies examine how noise pollution impacts visitor comfort, while natural soundscapes emphasize the healing effects of nature. GIS and sound mapping can provide visitors with new and emotional experiences that influence their behavior. Since immersive virtual environments such as AVR or Mobile Phone Sensing differentiate sound types, soundscapes require technology. Thus, soundscape participation increases tourist attraction participation and tourist behavior, and tourists' natural soundscape perspectives affect the satisfaction of tourists who use soundscapes to express their thoughts, feelings, and actions as they seek unique experiences.

Acknowledgments: This work was supported by the John von Neumann University, Kecskemét, Hungary.

Conflict of interest: The authors declare no conflict of interest.

References

Bai, W., Wang, J., Wong, J. W. C., Han, X., and Guo, Y. (2024). The soundscape and tourism experience in rural destinations: an empirical investigation from Shawan Ancient Town. Humanities and Social Sciences Communications, 11(1). https://doi.org/10.1057/s41599-024-02997-4

Barrigón Morillas, J. M., Gómez Escobar, V., and Rey Gozalo, G. (2013). Noise source analyses in the acoustical environment of the medieval centre of Cáceres (Spain). Applied Acoustics, 74(4), 526–534. https://doi.org/10.1016/j.apacoust.2012.10.001

Bernat, S. (2013). Awareness of noise hazards and the value of soundscapes in polish national parks. Archives of Acoustics, 38(4), 479 – 487. https://doi.org/10.2478/aoa-2013-0057

Brambilla, G., Gallo, V., and Zambon, G. (2013). The soundscape quality in some urban parks in Milan, Italy. International Journal of Environmental Research and Public Health, 10(6), 2348–2369. https://doi.org/10.3390/ijerph10062348

Brunoldi, M., Bozzini, G., Casale, A., Corvisiero, P., Grosso, D., Magnoli, N., Alessi, J., Bianchi, C. N., Mandich, A., Morri, C., Povero, P., Wurtz, M., Melchiorre, C., Viano, G., Cappanera, V., Fanciulli, G., Bei, M., Stasi, N., and Taiuti, M. (2016). A permanent automated real-Time passive acoustic monitoring system for bottlenose dolphin conservation in the mediterranean sea. PLoS ONE, 11(1). https://doi.org/10.1371/journal.pone.0145362

Buxton, R. T., Pearson, A. L., Allou, C., Fristrup, K., and Wittemyer, G. (2021). A synthesis of health benefits of natural sounds and their distribution in national parks. Proceedings of the National Academy of Sciences of the United States of America, 118(14), 6–11. https://doi.org/10.1073/PNAS.2013097118

Chen, M. (Match), Yu, P., Zhang, Y., Wu, K., and Yang, Y. (2021). Acoustic environment management in the countryside: A case study of tourist sentiment for rural soundscapes in China. Journal of Environmental Planning and Management, 64(12), 2154–2171. https://doi.org/10.1080/09640568.2020.1862768

Chen, M., Zhang, J., Zhang, Y., Wu, K., and Yang, Y. (2021). Rural Soundscape: Acoustic Rurality? Evidence from Chinese Countryside. Professional Geographer, 73(3), 521–534. https://doi.org/10.1080/00330124.2021.1880943

Dervis, H. (2019). Bibliometric analysis using bibliometrix an R package. Journal of Scientometric Research, 8(3), 156–160. https://doi.org/10.5530/JSCIRES.8.3.32

Fang, X., Gao, T., Hedblom, M., Xu, N., Xiang, Y., Hu, M., Chen, Y., and Qiu, L. (2021). Soundscape perceptions and preferences for different groups of users in urban recreational forest parks. Forests, 12(4). https://doi.org/10.3390/f12040468

Farina, A., and Pieretti, N. (2012). The soundscape ecology: A new frontier of landscape research and its application to islands and coastal systems. Journal of Marine and Island Cultures, 1(1), 21 – 26. https://doi.org/10.1016/j.imic.2012.04.002

Ferrier-Pagès, C., Leal, M. C., Calado, R., Schmid, D. W., Bertucci, F., Lecchini, D., and Allemand, D. (2021). Noise pollution on coral reefs? — A yet underestimated threat to coral reef communities. Marine Pollution Bulletin, 165(February). https://doi.org/10.1016/j.marpolbul.2021.112129

Francis, C. D., Newman, P., Taff, B. D., White, C., Monz, C. A., Levenhagen, M., Petrelli, A. R., Abbott, L. C., Newton, J., Burson, S., Cooper, C. B., Fristrup, K. M., McClure, C. J. W., Mennitt, D., Giamellaro, M., and Barber, J. R. (2017). Acoustic environments matter: Synergistic benefits to humans and ecological communities. Journal of Environmental Management, 203, 245–254. https://doi.org/10.1016/j.jenvman.2017.07.041

Gale, T., Ednie, A., Adiego, A., and Beeftink, K. (2021). How visitors and their perceptions of soundscapes can improve collaborative management of protected areas. Revista de Geografia Norte Grande, 2021(79), 33–55. https://doi.org/10.4067/S0718-34022021000200033

Gale, T., Ednie, A., and Beeftink, K. (2021). Thinking outside the park: Connecting visitors' sound affect in a nature-based tourism setting with perceptions of their urban home and work soundscapes. Sustainability (Switzerland), 13(12). https://doi.org/10.3390/su13126572

Galloway, K. (2017). Curating the aural cultures of the Battery: Soundwalking, auditory tourism and interactive locative media sound art. Tourist Studies, 18(4), 442–466. https://doi.org/10.1177/1468797617723764

Galloway, K. (2018). Curating the aural cultures of the Battery: Soundwalking, auditory tourism and interactive locative media sound art. Tourist Studies, 18(4), 442–466. https://doi.org/10.1177/1468797617723764

Grguric, D. (2020). Researching musicscapes in urban tourism: Case of the town of Krk. Journal of Urban Culture Research, 20, 10–25. https://doi.org/10.14456/jucr.2020.1

Grgurić, D., and Stipanović, C. (2021). Innovating the music and sound management model in tourist destinations. Cultural Management: Science and Education, 5(1), 25–39. https://doi.org/10.30819/cmse.5-1.02

Guo, Y., Jiang, X., Zhang, L., Zhang, H., and Jiang, Z. (2022). Effects of Sound Source Landscape in Urban Forest Park on Alleviating Mental Stress of Visitors: Evidence from Huolu Mountain Forest Park, Guangzhou. Sustainability (Switzerland), 14(22). https://doi.org/10.3390/su142215125

He, M., Li, J., Li, J., and Chen, H. (2019). A comparative study on the effect of soundscape and landscape on tourism experience. International Journal of Tourism Research, 21(1), 11 – 22. https://doi.org/10.1002/jtr.2237

Heenehan, H. L., Van Parijs, S. M., Bejder, L., Tyne, J. A., and Johnston, D. W. (2017). Using acoustics to prioritize management decisions to protect coastal dolphins: A case study using Hawaiian spinner dolphins. Marine Policy, 75, 84 – 90. https://doi.org/10.1016/j.marpol.2016.10.015

Heliades, G., Halkiopoulos, C., and Arvanitis, D. (2017). Dissemination of Environmental Soundscape and Musical Heritage Through 3D Virtual Telepresence BT - Tourism, Culture and Heritage in a Smart Economy (V. Katsoni, A. Upadhya, and A. Stratigea (eds.); pp. 19–34). Springer International Publishing.

Hosseini, A., and Kowkabi, L. (2023). Measuring the Soundscape Quality in Urban Spaces: A Case Study of Historic Urban Area. Sustainability (Switzerland), 15(5), 1–19. https://doi.org/10.3390/su15054255

Huang, L., and Kang, J. (2015). The sound environment and soundscape preservation in historic city centres—the case study of Lhasa. Environment and Planning B: Planning and Design, 42(4), 652 – 674. https://doi.org/10.1068/b130073p

Ivona, A., and Privitera, D. (2019). Places and religious bands: Explorations in spiritual tourism. International Journal of Religious Tourism and Pilgrimage, 7(4), 54 – 63. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85072792215&partnerID=40&md5=5f5ddece1e04ad6461850ae57dfbc08f

Jahani, A., Kalantary, S., and Alitavoli, A. (2021). An application of artificial intelligence techniques in prediction of birds soundscape impact on tourists' mental restoration in natural urban areas. Urban Forestry and Urban Greening, 61(February), 127088. https://doi.org/10.1016/j.ufug.2021.127088

Jiang, J. (2022). The role of natural soundscape in nature-based tourism experience: an extension of the stimulus–organism–response model. Current Issues in Tourism, 25(5), 707–726. https://doi.org/10.1080/13683500.2020.1859995

Jiang, J., and Yan, B. (2022). From soundscape participation to tourist loyalty in nature-based tourism: The moderating role of soundscape emotion and the mediating role of soundscape satisfaction. Journal of Destination Marketing & Management, 26, 100730. https://doi.org/https://doi.org/10.1016/j.jdmm.2022.100730

Jiang, J., Zhang, J., Zhang, H., and Yan, B. (2018). Natural soundscapes and tourist loyalty to nature-based tourism destinations: the mediating effect of tourist satisfaction. Journal of Travel and Tourism Marketing, 35(2), 218 – 230. https://doi.org/10.1080/10548408.2017.1351415

Jones, J. M., Westdal, K. H., Ootoowak, A. J., Wiggins, S. M., and Hildebrand, J. A. (2023). Impact of ship noise on the underwater soundscape of Eclipse Sound in the northeastern Canadian Arctic. Marine Pollution Bulletin, 195. https://doi.org/10.1016/j.marpolbul.2023.115534

Kaiser, M., and Kuckertz, A. (2023). Bibliometrically mapping the research field of entrepreneurial communication: where we stand and where we need to go. In Management Review Quarterly (Issue 0123456789). Springer International Publishing. https://doi.org/10.1007/s11301-023-00355-3

Kang, J., Aletta, F., Gjestland, T. T., Brown, L. A., Botteldooren, D., Schulte-Fortkamp, B., Lercher, P., van Kamp, I., Genuit, K., Fiebig, A., Bento Coelho, J. L., Maffei, L., and Lavia, L. (2016). Ten questions on the soundscapes of the built environment. Building and Environment, 108, 284–294. https://doi.org/10.1016/j.buildenv.2016.08.011

Kang, J., and Schulte-Fortkamp, B. (2016). Soundscape and the built environment. In Soundscape and the Built Environment. https://doi.org/10.1201/b19145

Kankhuni, Z., and Ngwira, C. (2022). Overland tourists' natural soundscape perceptions: influences on experience, satisfaction, and electronic word-of-mouth. Tourism Recreation Research, 47(5–6), 591–607. https://doi.org/10.1080/02508281.2021.1878653

Lefevre, B., Agarwal, R., Issarny, V., and Mallet, V. (2021). Mobile crowd-sensing as a resource for contextualized urban public policies: a study using three use cases on noise and soundscape monitoring. Cities & Health, 5(1–2), 179–197. https://doi.org/10.1080/23748834.2019.1617656

Li, H., and Lau, S. K. (2020). A review of audio-visual interaction on soundscape assessment in urban built environments. Applied Acoustics, 166, 107372. https://doi.org/10.1016/j.apacoust.2020.107372

Li, J., Burroughs, K., Halim, M. F., Penbrooke, T. L., Seekamp, E., and Smith, J. W. (2018). Assessing soundscape preferences and the impact of specific sounds on outdoor recreation activities using qualitative data analysis and immersive virtual environment technology. Journal of Outdoor Recreation and Tourism, 24, 66–73. https://doi.org/10.1016/j.jort.2018.08.001

Li, N., Wen, Y., Wang, Y., Li, Y., Chen, Q., Li, X., and Lv, B. (2022). Does Soundscape Perception Lead to Environmentally Responsible Behavior? A Case Study in Longcanggou Forest Park, China. Land, 11(9). https://doi.org/10.3390/land11091505

Lin, F., Chen, F., and Zhu, M. (2021). User Experience Centered Application Design of Multivariate Landscape in Kulangsu, Xiamen BT - Design, User Experience, and Usability: Design for Diversity, Well-being, and Social Development (M. M. Soares, E. Rosenzweig, & A. Marcus (eds.); pp. 43–59). Springer International Publishing. https://doi.org/https://doi.org/10.1007/978-3-030-78224-5_4

Lin, W. (2015). The hearing, the mapping, and the Web: Investigating emerging online sound mapping practices. Landscape and Urban Planning, 142, 187–197. https://doi.org/10.1016/j.landurbplan.2015.08.007

Liu, A., Wang, X. L., Liu, F., Yao, C., and Deng, Z. (2018). Soundscape and its influence on tourist satisfaction. Service Industries Journal, 38(3–4), 164–181. https://doi.org/10.1080/02642069.2017.1382479

Liu, J., Xiong, Y., Wang, Y., and Luo, T. (2018). Soundscape effects on visiting experience in city park: A case study in Fuzhou, China. Urban Forestry and Urban Greening, 31(December 2017), 38–47. https://doi.org/10.1016/j.ufug.2018.01.022

Lu, Y.-H., Zhang, J., Zhang, H., Xiao, X., Liu, P., Zhuang, M., and Hu, M. (2022). Flow in soundscape: the conceptualization of soundscape flow experience and its relationship with soundscape perception and behaviour intention in tourism destinations. Current Issues in Tourism, 25(13), 2090–2108. https://doi.org/10.1080/13683500.2021.1922363

Malec, M., Kędzior, R., and Ziernicka-Wojtaszek, A. (2023). The Method of Soundscape Naturalness Curves in the Evaluation of Mountain Trails of Diversified Anthropopressure—Case Study of Korona Beskidów Polskich. Sustainability (Switzerland), 15(1). https://doi.org/10.3390/su15010723

Mason, K. (2004). Sound and meaning in Aboriginal tourism. Annals of Tourism Research, 31(4), 837–854. https://doi.org/10.1016/j.annals.2004.03.006

Minier, L., Bertucci, F., Raick, X., Gairin, E., Bischoff, H., Waqalevu, V., Maueau, T., Sturny, V., Blin, E., Parmentier, E., and Lecchini, D. (2023). Characterization of the different sound sources within the soundscape of coastline reef habitats (Bora Bora, French Polynesia). Estuarine, Coastal and Shelf Science, 294. https://doi.org/10.1016/j.ecss.2023.108551

Montazerolhodjah, M., Sharifnejad, M., and Montazerolhodjah, M. R. (2019). Soundscape preferences of tourists in historical urban open spaces. International Journal of Tourism Cities, 5(3), 465–481. https://doi.org/10.1108/IJTC-08-2018-0065

Moral-muñoz, J. A., Herrera-viedma, E., Santisteban-espejo, A., and Cobo, M. J. (2020). Software tools for conducting bibliometric analysis in science: An up- to-date review. El Profesional de La Información, 29(1), 1–20. https://doi.org/https://doi.org/10.3145/epi.2020.ene.03

Phillips, M., and Lu, J. (2018). A quick look at NVivo. Journal of Electronic Resources Librarianship, 30(2), 104–106. https://doi.org/10.1080/1941126X.2018.1465535

Qiu, M., Zhang, J., and Zheng, C. (2018). Exploring tourists' soundscape emotion and its impact on sustainable tourism development. Asia Pacific Journal of Tourism Research, 23(9), 862–879. https://doi.org/10.1080/10941665.2018.1494614

Rahmat A.F., Bujdosó, Z., Zhu, K., Kapil, H., Kaliyeva, A., Beisakhmet, A., ... & Dávid, L. D. (2024). Wider Landscapes Become Tourismscapes: Bibliometric Analysis and Identification of Key Issues in the Literature. Journal of Sustainability Research. Vol.6(2). https://doi.org/10.20900/jsr20240021

Rahmat, A.F., Bujdosó, Z., Pamungkas, M.R., Issakov, Y., Ali Bağdadi, A., Uaisova, A., Dávid, L.D. (2024). "Are there truly acoustic melodies on hillsides?" Can such human-based manufactured soundscapes be an asset to tourism destinations? Journal of Infrastructure, Policy and Development. 8(13): 9230. DOI: https://doi.org/10.24294/jipd9230

Rehan, R. M. (2016). The phonic identity of the city urban soundscape for sustainable spaces. HBRC Journal, 12(3), 337–349. https://doi.org/10.1016/j.hbrcj.2014.12.005

Rodríguez-Rodríguez, D. (2012). Integrated networks. A territorial planning proposal for biodiversity conservation in urban, densely populated regions. The case of the Autonomous Region of Madrid, Spain. Journal of Environmental Planning and Management, 55(5), 667 – 683. https://doi.org/10.1080/09640568.2011.620391

Schulte-Fortkamp, B., and Jordan, P. (2023). Soundscape: The Holistic Understanding of Acoustic Environments BT - Soundscapes: Humans and Their Acoustic Environment (B. Schulte-Fortkamp, A. Fiebig, J. A. Sisneros, A. N. Popper, and R. R. Fay (eds.); pp. 49–79). Springer International Publishing. https://doi.org/10.1007/978-3-031-22779-0_3

Sikora, M., Russo, M., undefinederek, J., and Jurčević, A. (2018). Soundscape of an Archaeological Site Recreated with Audio Augmented Reality. ACM Trans. Multimedia Comput. Commun. Appl., 14(3). https://doi.org/10.1145/3230652

Van Eck, N. J., and Waltman, L. (2019). Manual for VOSviwer version 1.6.10. CWTS Meaningful Metrics, January, 1–53. https://www.vosviewer.com/documentation/Manual_VOSviewer_1.6.10.pdf

Wu, K., Liu, P., and Nie, Z. (2021). Estimating the economic value of soundscapes in nature-based tourism destinations: A separation attempt of a pairwise comparison method. Sustainability (Switzerland), 13(4), 1 – 23. https://doi.org/10.3390/su13041809

Yang, J., and Lu, H. (2022). Visualizing the Knowledge Domain in Urban Soundscape: A Scientometric Analysis Based on CiteSpace. International Journal of Environmental Research and Public Health, 19(21). https://doi.org/10.3390/ijerph192113912

Yimprasert, W., Teampanpong, J., and Somnam, K. (2021). Soundscape quality in recreation areas of khao yai national park in Thailand. Journal of Environmental Management and Tourism, 12(5), 1324 – 1334. https://doi.org/10.14505/jemt.v12.5(53).17

Zhang, D., Kong, C., Zhang, M., and Kang, J. (2022). Religious Belief-Related Factors Enhance the Impact of Soundscapes in Han Chinese Buddhist Temples on Mental Health. Frontiers in Psychology, 12(January), 1–16. https://doi.org/10.3389/fpsyg.2021.774689

Zhao, W., Rui, Q., Zhu, X., and Xu, H. (2023). Effect of Soundscape on Place Attachment for Historical Blocks: A Case Study of Harbin, China. Buildings, 13(3). https://doi.org/10.3390/buildings13030607

Zhao, X. (2009). A quantification analysis on acoustic landscapes of waterfront scenic areas: A case study of Hangzhou City, China. Journal of Asian Architecture and Building Engineering, 8(2), 379 – 384. https://doi.org/10.3130/jaabe.8.379

Zhuang, M., Zhang, H., Li, P., Shen, C., Xiao, X., and Zhang, J. (2023). Connecting tourists to musical destinations: The role of musical geographical imagination and aesthetic responses in music tourism. Tourism Management, 98. https://doi.org/10.1016/j.tourman.2023.104768

Zuo, L., Zhang, J., Zhang, R. J., Zhang, Y., Hu, M., Zhuang, M., and Liu, W. (2020). The transition of soundscapes in tourist destinations from the perspective of residents' perceptions: A case study of the lugu lake scenic spot, Southwestern China. Sustainability (Switzerland), 12(3). https://doi.org/10.3390/su12031073