

Exploring trophy hunting and recreational hunting tourism: an analysis from a bibliometric perspective (1971–2024)

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Annotation. Recreational and trophy hunting are controversial practices that intersect ecological conservation, ethical debates and socio-economic development. Only a few studies have been conducted on this subject; thus, this study analyses scientific literature on recreational and trophy hunting by applying the systematic literature network analysis methodology. It uses bibliometric software Bibliometrix and VOSviewer© to analyse a total of 1,559 scientific publications short-listed from the Web of Science© and Scopus© databases from 1971 to 2024. Geographically, there is a lack of research in regions with a hunting tradition. The study contribution extends to the academic and policy areas, establishing a basis for guiding future research and informed policymaking on trophy hunting with socio-economic benefits.

Keywords: hunting tourism, sustainable tourism, ethics, wildlife conservation, socio-economic impact.

JEL classification: L83-Z32.

Introduction

Although humans have hunted since ancient times, sport hunting, trophy hunting and hunting tourism—the pursuit of wildlife for recreation—were not leisure industries until the 20th century, when their expansion coincided with rising leisure time and the growth of rural tourism in industrialised countries (Mulero Mendigorri, 1991).

Rengifo Gallego (2008) defined hunting tourism as a set of activities undertaken by individuals who travel to a specific location, attracted by the hunting resource, with the aim of capturing a game in a sustainable way, using different techniques and means.

Similarly, Bichel and Hart (2023) described 'trophy hunting' as any hunting of a non-human animal in which part of the animal is kept for personal display and souvenir purposes.

Trophy hunting and hunting tourism are economically relevant worldwide, particularly in wildlife-rich regions. Historically rooted in colonial hunting practices, these activities influence conservation, rural development and sustainable tourism. For example, in 23 sub-Saharan African countries, trophy hunting generated approximately 201 million USD annually and encompassed 1.4 million km² of land (Lindsey *et al.*, 2006). In South Africa alone, the economic impact reached USD 137 million in 2013 (Di Minin *et al.*, 2016). According to the International Union for Conservation of Nature (2016), regulated trophy hunting benefits several African countries from annual revenues between 1.1 and 12.2 million USD. In Namibia, hunting generated 3 million USD in net revenue in 2013, accounting for 14% of tourism income (Naidoo *et al.*, 2016). In addition, trophy hunting and hunting tourism generate substantial revenue in North America, Europe and Central Asia, although values differed per region and methodological approach (Sharp and Wollscheid, 2009).

Studies on comprehensive bibliometric mapping of trophy hunting and hunting tourism remains limited. Researchers partially focus on wildlife ecology, governance and ethical debates; they do not trace the intellectual development in the field over time. Consequently, the academic community lacks an integrated overview of the evolution, thematic structure and emerging trends in trophy hunting and hunting tourism research since 1971.

This study addresses this gap by applying systematic literature network analysis (SLNA) to publications indexed in Web of Science® and Scopus®. The original approach integrates systematic review principles with bibliometric network methods to provide a transparent and replicable mapping of research patterns, influential articles, key authors and thematic developments.

This study conducted a comprehensive bibliometric analysis of research patterns and trends in trophy hunting and hunting tourism. In total, four specific objectives guide the analysis:

O1: Identify the most influential articles, journals and authors. The rationale is to understand the most prolific authors, influential journals and highly cited documents, providing critical insights into the core knowledge base and intellectual leaders of the field. This identifies the foundational works and key publication channels shaping academic discourse.

O2: Determine the publications with the highest academic impact through citation analysis. Citation analysis is a proxy for the academic influence and relevance of individual publications. By identifying highly cited works, we can identify seminal contributions that significantly shape subsequent research and theoretical development in the field.

O3: Map thematic clusters and emerging trends using keyword co-occurrence and longitudinal analysis. As keyword co-occurrence analysis reveals the thematic clusters and intellectual structure of the field, while longitudinal analysis traces the evolution of these themes over time, this is crucial for identifying established research areas, emergent topics and potential gaps for future research, offering a roadmap for academic enquiry.

O4: Examine the theoretical foundations through co-citation analysis. This objective maps the intellectual lineage and inter-disciplinary theoretical influences shaping the study of trophy hunting and recreational hunting tourism because co-citation analysis identifies groups of frequently co-cited works, often representing the theoretical pillars or conceptual frameworks underpinning a research area.

This article is structured as follows: Section 1 reviews historical and conceptual approaches to trophy hunting and hunting tourism. Section 2 describes the proposed methodological framework. Section 3 presents the results, and the final section outlines future research directions.

1. Literature Review

This section overviews the existing academic literature on trophy hunting and recreational hunting tourism. It traces the historical and conceptual evolution of hunting as a leisure and economic activity, underscoring its transition from subsistence to specialised tourism. We then examine the multi-disciplinary nature of research, comprehending how diverse academic disciplines, including conservation biology, tourism studies, economics and sociology, contribute to its understanding. This subsection details the different theoretical and empirical approaches for studying trophy hunting and recreational hunting and sets the context for our bibliometric analysis by identifying key themes and debates that shaped academic discourse.

1.1 Approaches to Trophy Hunting Research

The study of trophy hunting and recreational hunting tourism has considerably evolved, reflecting changes in social values, scientific knowledge and conservation paradigms. Early research often focused on the ecological impacts and dynamics of wild populations, driven by concerns over sustainability and resource management; this included studies on harvest rates, age and sex structures of hunted populations and the biological consequences of selective hunting. Meanwhile, an economic perspective emerged, assessing the financial contributions of hunting to local economies, particularly in developing countries, and its potential as a funding mechanism for conservation initiatives.

Thus, different approaches mark the research on trophy hunting over time (López Ontiveros, 1992):

1) Early conservationist approaches (1930s–1960s)

This period was characterised by the incipient recognition of the relevance of hunting in conservation. The most relevant work of these 3 decades is the pioneering work of Aldo Leopold, *Game Management* (Leopold, 1933), who established the fundamental principles that relate hunting to wildlife conservation. Leopold argued that regulated hunting can serve as a conservation tool rather than merely an extractive activity. This initiated research on recreational hunting and hunting tourism, with Dasman and Mossman's (1961) study on the commercial exploitation of wildlife in Africa laying the foundation for understanding the economic potential of wildlife resources. In addition, Grame Caughley (1966) provided the first scientific framework for sustainable hunting.

This research approach is debatable to date, with some authors arguing that hunting is the primary causes of biodiversity loss, especially in tropical regions where the proximity of settlements exacerbates hunting pressure, leading to the depletion of wildlife (Benítez-López *et al.*, 2017). Others emphasise its role in reinforcing neo-colonial dynamics, such that trophy hunting, especially in Africa, remains a form of neo-colonial green extractivism (Sullivan, 2023). Although the extraction of wild animals for trophies is justified under the pretext of conservation, it perpetuates inequalities and does not necessarily benefit local ecosystems in some regions.

2) Economic valuation studies (1970s–1990s)

During these 2 decades, studies focused on quantifying the economic value of trophy hunting, its development potential and its impact on local communities, justifying its capacity to generate income

and support community development. Academically relevant studies, such as Schole's (1973) in-depth analysis of hunter characteristics and attitudes; Dixon's (1978) study of the economic potential of hunting and hunter preferences in southern and south-west Africa; and Child's (1988) study, one of the first comprehensive analyses of wildlife utilisation in the economic development of African rangelands, were noted.

In addition, Hudson *et al.*'s (1989) volume entitled *Wildlife Production Systems: Economic Utilisation of Wild Ungulates* comprehensively dealt with the economics of wildlife utilisation, including hunting tourism, and strengthened the framework for understanding the economic dimensions of recreational tourism.

3) Sustainability debates (1990s–2000s)

As early as the 1990s, cost–benefit analysis models were applied to analyse the economic and financial profitability of wildlife-related land uses on private land. Considerably, Barnes and de Jager (1996) and Baker (1997a) reported that the financial profitability of livestock and game production for consumptive use and wildlife production for non-consumptive use is usually low. However, these activities are economically efficient and positively contribute to national income. Therefore, private landowners have economic incentives to group and form large-scale conservation areas, and the farming of certain species in semi-wild environments is recommended to ensure sustainable trophy hunting while protecting wildlife (Petroman, 2009).

4) Integrated socio-ecological approaches (since 2000)

With the new millennium, the research landscape in this field is adopting an integrated socio-ecological approach that considers the complex interactions between social and ecological systems; this approach emphasises the need to understand local perceptions, power relations and the socio-economic impacts of hunting. Thus, in Namibia, combining socio-ecological systems with global production networks helps understand the local effects of trophy hunting and its contribution to regional development, integrating with community conservation efforts to balance wildlife conservation and local community benefits (Baker, 1997b) (Gargallo *et al.*, 2020). Considering sustainability and conservation, a key element for the success of hunting tourism businesses is good co-operation with local people and an understanding of the local hunting culture and the rights of local people related to it (Matilainen, 2007).

Moreover, socio-ecological framework has been applied to analyse the contradictions of trophy hunting concerning human welfare and wildlife conservation (Mbaiwa *et al.*, 2021). In summary, each of the above-mentioned approach established the theoretical foundations of recreational and trophy hunting and understood the practice as a conservation tool and a crucial economic and social activity.

1.2 Bibliometric Context of Trophy Hunting

Despite its extended history and crucial academic impact, research on trophy hunting or recreational hunting tourism has been partial. The fact that the subject matter encompasses multiple disciplines, such as wildlife biology, tourism studies, conservation and sustainability science and rural economics, makes it difficult to understand the scope of contributions and academic advances. Some related work includes partial bibliometric elements. Thus, Bredis *et al.* (2015) conducted a bibliometric study of scientific articles indexed in Scopus® and Econlit® using the keywords 'hunting tourism' and 'game tourism', between 1978 and 2014, which identified 56 documents. Hauka and Minin (2018) reviewed 1,200 articles and identified the spatial and temporal patterns of legal hunting in the English academic

literature, the wildlife on which research has focused, and the socio-ecological, management, governance and animal welfare implications of legal hunting. Di Minin *et al.* (2021) reviewed species ecology from 1953 to 2020 to identify sustainable hunting practices, noting a significant lack of research on local perceptions and institutions influencing socio-economic and conservation outcomes.

Green and Kerr (2022) provided a systematic assessment of hunters' valuations of recreational hunting on a global scale. This analysis focuses on the economic valuation of hunting, particularly in the US, and examines factors such as the type of game animal, per capita income and valuation methods that significantly affect the estimated values. In contrast, Dinc *et al.* (2023) reviewed trends and developments in ecotourism over the past 2 decades, with a partial literature review on the sustainability or conservation of the environment for recreational hunting or hunting tourism activities.

In addition, there are bibliometric analyses in related fields that have tangentially analysed trophy hunting, recreational hunting or hunting tourism. For example, Kanta *et al.* (2021) analysed studies on nature tourism related to bird watching, conservation, economics, hunting, mammals, management, marine monitoring, negative impacts, positive impacts and captive wildlife. Moreover, Parket *et al.* (2023) compiled information on various ecological and socio-economic characteristics of mammal trophy hunting in Asian countries and an analysis of trade data.

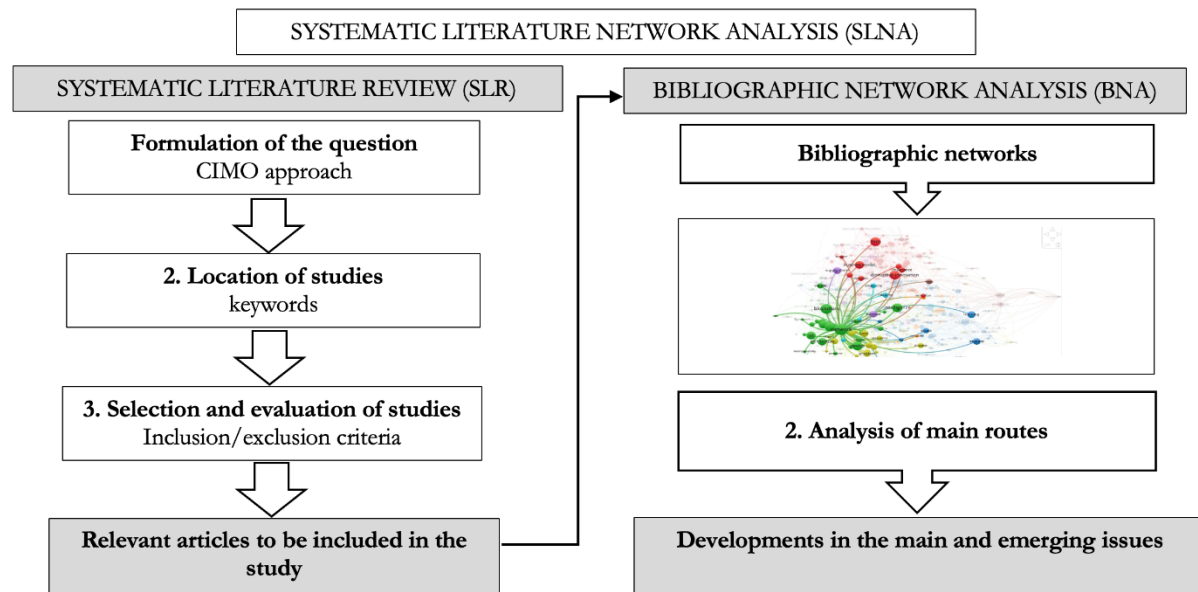
In summary, bibliometric analyses have been carried out in fields related to nature tourism, wildlife conservation and recreational hunting, but only partially focused on specific aspects or systematic reviews rather than bibliometric analyses. Consequently, there is a lack of bibliometric studies focusing specifically on trophy hunting, recreational hunting or hunting tourism. This deficit justifies the opportunity to undertake the present work to identify patterns and present and future trends in trophy hunting and recreational hunting tourism research at a global level.

2. Methodology

2.1 Bibliometric analysis

Bibliometric analysis combined with a systematic literature review identifies influential publications, map research trajectories and detect emerging themes. To fulfil the study objectives, we adopted the SLNA framework, integrating two complementary components: the systematic literature review (SLR) for the initial identification and screening of relevant studies and bibliographic network analysis (BNA) to examine citation structures and thematic linkages.

To achieve the research objectives, a dual methodology has been applied: the SLR approach (Rousseau *et al.*, 2008; Tranfield *et al.*, 2003) to make the first selection of the most relevant articles to be included, and the BNA (Hummon, Doreian, 1989) to make a second selection based on citations to investigate knowledge creation, transfer and development. By combining these two methodologies, a new one is formed, called SLNA, introduced by Colicchia and Strozzi (2012), allowing the identification, selection and analysis of secondary data. SLNA differs from other review methods because of its principles, transparency, inclusiveness and explanatory and heuristic nature that allow a more objective view of the search results, and eliminate any bias and error (Denyer, Tranfield, 2009). The assumption underlying the CNA is that research fields are not just sets of articles without form in terms of citations; rather, it views a citation network as a system of channels transforming scientific knowledge, assuming that researchers cite each other to position their work in the field based on prior knowledge (Hummon, Doreian, 1989). *Figure 1* presents a schematic of the described methodology.



Source: Colicchia and Strozzi (2012).

Figure 1. Research Methodology

The advantages of SLR include its rigorous and transparent process for identifying, evaluating and synthesising all relevant research, thereby reducing bias and comprehensively overviewing a specific topic (Tranfield *et al.*, 2003; Denyer and Tranfield, 2009). However, BNA uncovers the underlying intellectual structure of a research domain by mapping relationships between authors, articles and concepts through citation patterns (Hummon, Doreian, 1989).

The choice of SLNA is particularly appropriate for this study, providing an exhaustive and dynamic overview of the diverse and evolving field of trophy hunting and recreational hunting tourism. Unlike traditional narrative reviews, potentially subjective or systematic and primarily synthesise content, SLNA offers a unique capability to map the intellectual landscape objectively over time (Colicchia, Strozzi, 2012; Colicchia *et al.*, 2019). It transcends simple content aggregation by employing quantitative bibliometric tools and algorithms (e.g. citation networks, keyword co-occurrence networks) to reveal the dynamic evolution of the field, its main theoretical perspectives and emerging research domains (Khitous *et al.*, 2020). This methodology is more suitable than a traditional systematic review or a simple bibliometric analysis because it identifies what has been published and how different elements of the scientific production—such as authors, institutions, countries and keywords—are inter-connected and have co-evolved. Studies in complex, multi-disciplinary areas, such as corporate sustainability (Ersoy, 2022) or smart tourism destinations (El Archi *et al.*, 2023), have successfully leveraged SLNA to provide a holistic and dynamic understanding of their respective fields, justifying its application in our equally complex research area.

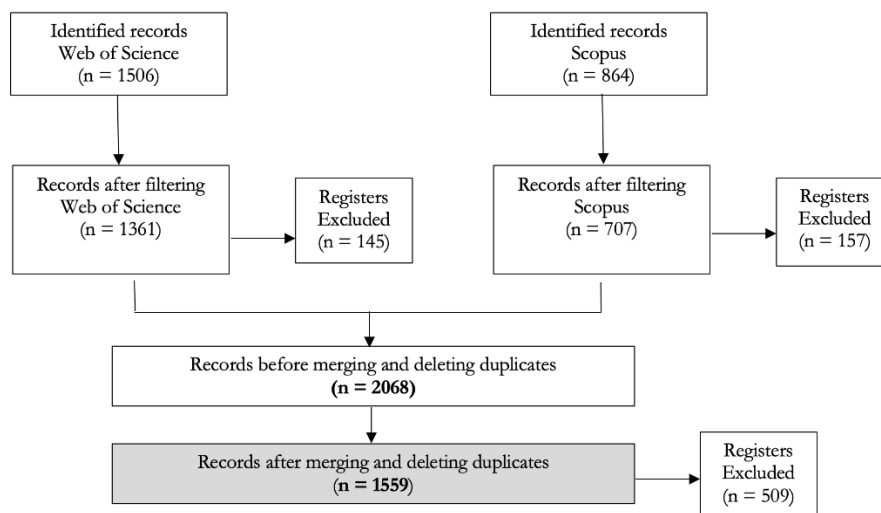
As a bibliometric review, this study is inherently exploratory. It primarily, systematically maps the intellectual structure, identifies key trends and characterises the existing literature on trophy hunting and recreational hunting tourism. Therefore, considering the established practices for exploratory bibliometric analyses, this research does not propose or test specific hypotheses, but uncovers patterns and overviews the academic landscape, paving the way for future hypothesis-driven research.

2.2 Search String

Web of Science® and Scopus® were used to retrieve relevant publications from the beginning of the research field to date. Once the publications had been selected, four software packages were used to address the research objectives: VOSviewer®, Bibliometrix, RStudio and Excel®. Of the first two for bibliographic and bibliometric analysis, VOSviewer® (Van Eck, Waltman, 2010) created and visualised bibliographic networks between authors, sources, countries and keywords and analyse co-authorship, co-occurrence and co-citations. Similarly, bibliographic couplings have been carried out, which have helped identify representative clusters of scientific literature. For its part, Bibliometrix—a bibliometric tool developed in the R language—designed scientific mapping (Aria, Cuccurullo, 2017). RStudio merged or removed duplicates from Web of Science® and Scopus®. The use of Excel® spreadsheets is justified by organising numbers and data, with formulas and functions and the generation of editable graphs.

Initially, Web of Science® represented a greater coverage of hunting tourism content, whereas the Scopus® coverage was much lower; however, the research was extended if any articles in Scopus® of particular relevance were missing from Web of Science®. The search strategy was applied by combining the keywords trophy hunting, recreational hunting and hunting tourism, as their delimitation by the Boolean operator ‘AND’ led to research areas such as biochemistry, medicine, microbiology or engineering.

The initial search yielded 1,506 and 864 documents in Web of Science® and Scopus®, respectively. The retrieved data were cleaned to eliminate duplicates and irrelevant documents. Only research articles were considered, discarding book chapters, letters, notes, conferences and other bibliographic material. This exclusion criterion ensured that the focus remained on peer-reviewed, original research contributions, thereby enhancing the academic rigour and comparability of the dataset for bibliometric analysis. Book chapters, conference proceedings, letters and notes often lack the same level of peer review or represent preliminary findings, and their inclusion could skew the analysis of established academic trends and impactful research.



Source: Own elaboration.

Figure 2. Data Collection

The process of eliminating duplicates was meticulously performed using the ‘mergeDbSources()’ function within the ‘bibliometrix’ package in RStudio. This function is specifically designed for merging and de-duplicating bibliographic data from multiple databases. De-duplication involved matching records based on a combination of metadata fields, including digital object identifier (DOI), article title, authors, publication year and journal title. For records without a DOI, the algorithm prioritised matching based on a combination of title and first author, followed by title and publication year. Any discrepancies were manually reviewed to ensure accuracy and prevent erroneous exclusions or inclusions. This systematic approach led to a robust and clean dataset for analysis.

The final database comprised 1,559 references on the subject in question. *Figure 2* summarises the data collection process.

3. Results

3.1 Performance and Citation Analysis

Table 1 overviews the data. The 1,559 articles were short-listed from 656 journals. Of all the papers, only 139 were single-authored, indicating a high level of collaboration between authors, with 32% international collaborations. Although the search period was from 1971 to 2024, no articles on trophy hunting, recreational hunting and hunting tourism were published during 1974–1977, 1979–1981 and 1984, respectively.

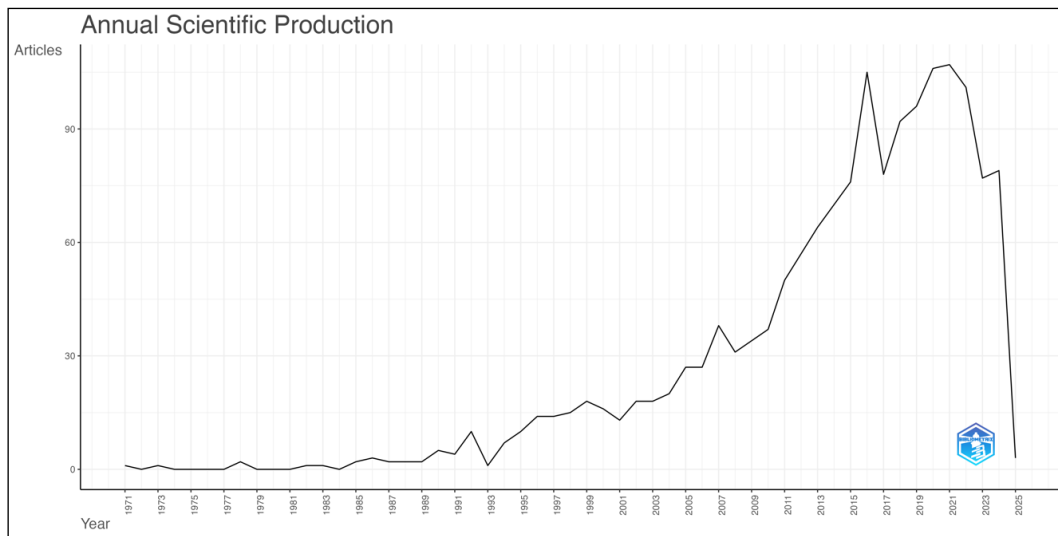
Table 1. Overview of the cleaned database

Description	Results
Main data information	
Timespan	1971:2024
Sources	656
Documents	1559
Annual growth rate (%)	2,14
Average number of citations per document	22,94
Average age of the document	10,8
References	55067
Contents of the documents	
Keywords Plus (ID)	3653
Author’s keywords (DE)	4037
Authors	
Authors	4184
Single-authored documents	297
Collaborations between authors	
Co-authors per document	3,77
International co-authorship % International co-authorship % International co-authorship % International co-authorship	32,99

Source: own elaboration based on Bibliometrix.

Figure 3 shows the annual distribution of articles published between 1971 and 2024. Although the first article in the database dates back to 1971 (Lent, 1971), it was not until the mid-1990s that trophy hunting, recreational hunting and hunting tourism started to arouse interest among the scientific community.

From 1993 onwards, there was an increase in scientific production at an annual rate of 30%. Meanwhile, the first study analysing the demographic and psychological characteristics of hunting tourists and the associated hunting costs was published at the end of the 1980s (Schulz, 1988).



Source: own elaboration based on Bibliometrix.

Figure 3. Annual Scientific Production, 1971–2025

Considering Aria and Cuccurullo (2017), Table 2 shows the top 10 authors with the greatest scientific impact on the subject under analysis based on different metrics. Among them, MacDonald, D. and Leveridge, A. stood out as authors who contributed the most to the scientific production on trophy hunting and hunting.

Table 2. Top 10 authors by number of articles

Author	h_index	g_index	m_index	TC	NP	PY_start
Lindsey, P.	20	25	1	1924	25	2006
MacDonald, D.	19	37	0,864	1519	37	2004
Loveridge, A.	18	27	0,947	1360	27	2007
Balme, G.	14	18	0,824	1213	18	2009
Festa-Bianchet, M.	13	24	0,464	1299	24	1998
Funston P.	13	13	0,813	536	13	2010
Dickman A.	11	21	0,846	581	21	2013
Hunter, L.	11	15	0,647	935	15	2009
Becker, M.	10	10	0,769	611	10	2013
Henschel, P.	9	10	0,692	586	10	2013

Note: TC (total citations), NP (net production), PY (start of production year).

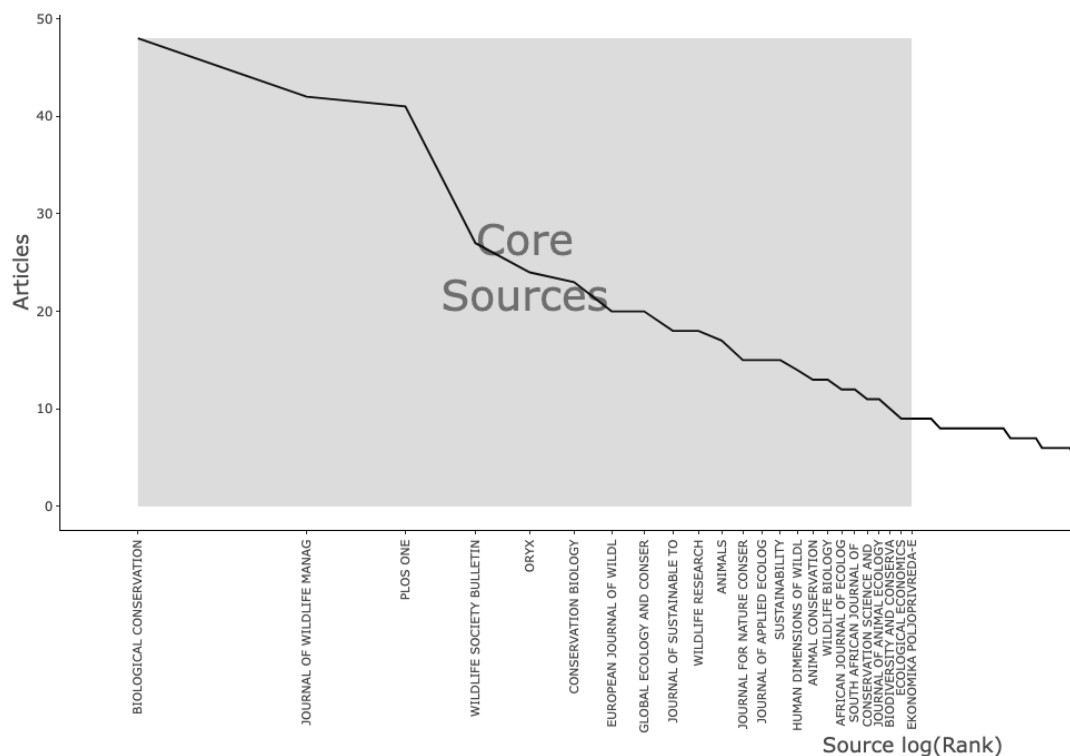
Source: own elaboration based on Bibliometrix.

Considering the relevance of the sources, the journals have been classified per Bradford’s Law (Bradford, 1934). Figure 4 shows three zones, each with approximately 520 articles. Zone 1, represented by grey vertical lines, shows the sources with the highest scientific production and is made up of 25 journals; zone 2, with moderate production, is made up of 144 journals; and zone 3, with the lowest production, is made up of 487 journals. Table 3 shows the impact metrics of the top 15 journals with the highest production—published 25% of the scientific production on the subject under analysis.

Table 3. Top 15 journals by papers

NO.	Sources	h_index	g_index	m_index	TC	NP	PY_start
1	Biological Conservation	28	54	0,528	2998	55	1973
2	Journal of Wildlife Management	25	41	0,568	1686	42	1982
3	Conservation Biology	20	29	0,588	2306	29	1992
4	PLOS ONE	20	45	1,111	2125	45	2008
5	Oryx–The International Journal of Conservation	19	30	0,655	1047	30	1997
6	Wildlife Society Bulletin	15	27	0,5	741	30	1996
7	Journal of Sustainable Tourism	13	20	0,448	618	20	1997
8	Animal Conservation	11	14	0,55	464	14	2006
9	Human Dimensions of Wildlife	11	17	0,393	319	23	1998
10	Journal of Applied Ecology	11	16	0,55	935	16	2006
11	Journal of Animal Ecology	10	11	0,588	368	11	2009
12	Wildlife Research	10	14	0,526	237	22	2007
13	African Journal of Ecology	9	12	0,3	193	12	1996
14	Biodiversity and Conservation	9	11	0,391	206	11	2003
15	European Journal of Wildlife Research	9	16	0,3	282	23	1996

Source: own elaboration based on Bibliometrix.



Source: own elaboration based on Bibliometrix.

Figure 4. Bradford’s Law Principal Sources

Table 4 lists the most cited articles from Web of Science® and Scopus® (global citations). First, we find the article Uncovering ecosystem service bundles through social preferences (Martín-López *et al.*, 2012), which noted how ecosystem service bundles and trade-offs arise from divergent social preferences towards ecosystems themselves. Based on fieldwork of 3,379 questionnaires in eight ecosystems in Spain, the authors show evidence of trade-offs between provisioning services and regulating services,

and almost all cultural services, concluding that socio-cultural preferences towards ecosystem services can identify relevant services for the population. The paper Undesirable evolutionary consequences of trophy hunting by Coltman *et al.* (2003) showed that selective hunting based on phenotype, including trophy hunting, has important implications for sustainable wildlife management if it targets heritable traits.

Table 4. Top 10 papers by times cited

#	Article	Total Quotes
1.	(Martín-López, et al., 2012), Uncovering ecosystem service bundles through social preferences. <i>PLoS One</i> .	792
2.	(Coltman et al., 2003), Undesirable evolutionary consequences of trophy hunting. <i>Nature</i>	609
3.	(Massei et al., 2015), Wild boar populations up, numbers of hunters down? A review of trends and implications for Europe. <i>Pest Management Science</i> .	586
4.	(Boxall et al., 1996), A comparison of stated preference methods for environmental valuation, <i>Ecological Economics</i>	483
5.	(Lindsey et al., 2007), Economic and conservation significance of the trophy hunting industry in sub-Saharan Africa, <i>Biological Conservation</i> .	346
6.	(Köndgen et al., 2008), Pandemic human viruses cause decline of endangered great apes, <i>Current Biology</i> .	328
7.	(Milner, J.M. et al., 2007), Demographic side effects of selective hunting in ungulates and carnivores, <i>Conservation Biology</i> .	323
8.	(Kuvlesky Jr., W.P. et al., 2007), Wind energy development and wildlife conservation: challenges and opportunities, <i>The Journal of Wildlife Management</i> .	314
9.	(Milner et al., 2006), Temporal and spatial development of red deer harvesting in Europe: biological and cultural factors, <i>Journal of Applied Ecology</i> .	286
10.	(García Nieto, et al., 2013), Mapping Forest ecosystem services: From providing units to beneficiaries.	261

Source: own elaboration based on Bibliometrix.

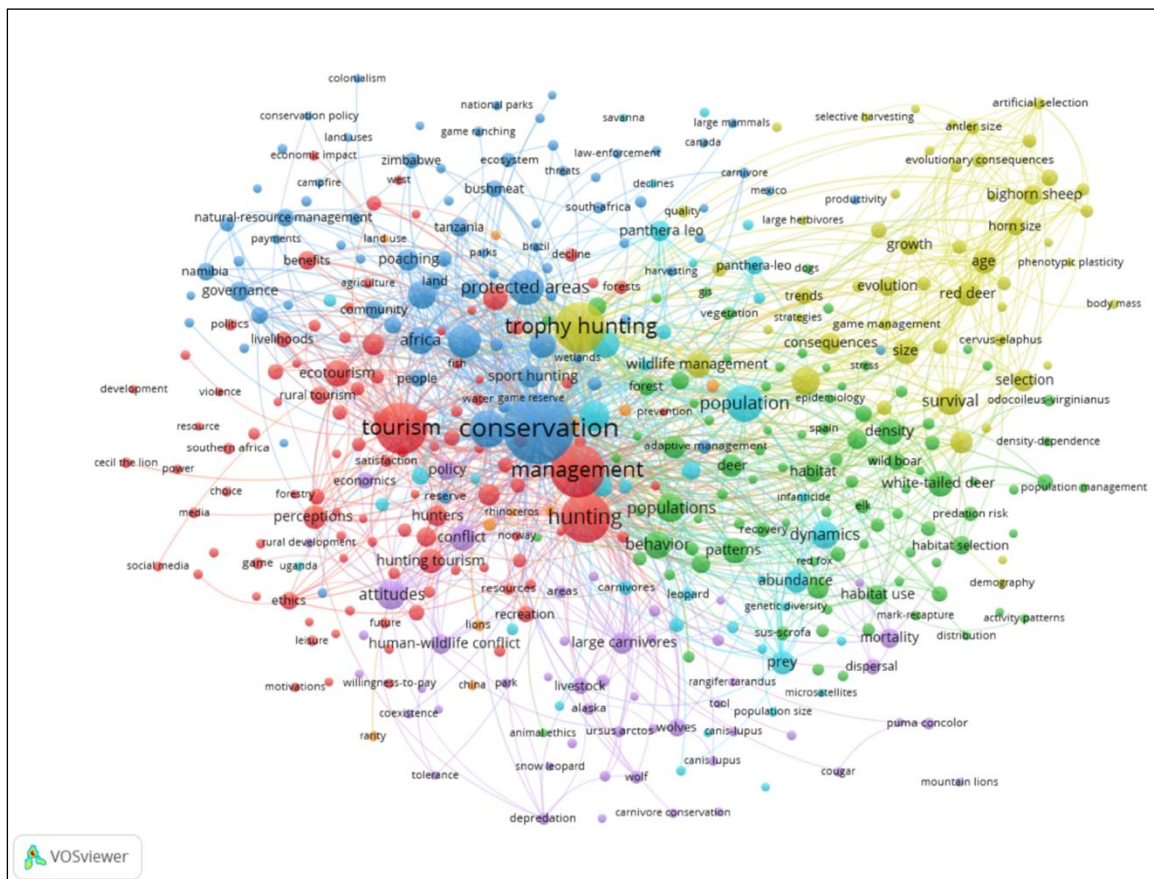
Concerning environmental impact, the article Wild boar populations up, numbers of hunters down? A review of trends and implications for Europe (Massei *et al.*, 2015) concluded that recreational hunting is insufficient to limit boar population growth in Europe, and hunting has a declining impact on boar mortality has declined. A comparison of stated preference methods for environmental valuation by Boxall *et al.* (1996) presents an empirical comparison of the contingent valuation method and selected experiments used to value changes in environmental quality. The empirical application focused on the effect of changes in environmental quality resulting from forest management practices on recreational elk hunting values. The authors found notable differences between the values derived from the two methods.

From an economic and conservation significance viewpoint, the article Economic and conservation significance of the trophy hunting industry in sub-Saharan Africa (Lindsey *et al.*, 2007) analyses the scale of the trophy hunting industry and positive and negative aspects related to hunting and conservation in Africa. Reportedly, trophy hunting is prominent for conservation in Africa because it creates economic incentives for conservation over vast areas, including areas potentially unsuitable for alternative wildlife-based land uses such as photographic ecotourism. However, they underscore various problems associated with the sector limiting the conservation benefits. Most problems are common in several countries, suggesting that if solutions were developed, conservation benefits would accrue over wide areas. Regarding conservationism, the paper Pandemic human viruses cause decline of endangered great apes by Köndgen *et al.* (2008) highlights commercial hunting and habitat loss as the primary causes of the rapid decline of great apes. Although ecotourism and research have been widely promoted as a

means of providing alternative value to apes and their habitats, proximate human–human contact raises concerns about the risks of human disease transmission, possibly outweighing the benefits. The paper Demographic side effects of selective hunting in ungulates and carnivores (Milner *et al.*, 2007) reviews how selective harvesting regimes affect them. The age and sex classes of hunted populations contribute differently to population dynamics, with hunters showing preferences associated with body size and trophy value, but also with the demography of other populations.

3.2 Keyword co-Occurrence Analysis

A keyword co-occurrence analysis was conducted to identify the prominent themes on trophy hunting, hunting tourism and recreational hunting. The clusters presented in *Figure 5* and *Figure 6* were examined to illustrate the relevant research topics. The six colours in *Figure 5* represent clusters to which each keyword belongs and the six lines of literature research. There are three representative research strands: the blue, red and yellow clusters relate to conservation of protected areas, hunting tourism and trophy hunting and wildlife management, respectively. In addition, the green and light blue clusters relate to species behaviour in different habitats and the purple one to ethical conflicts in trophy and recreational hunting.

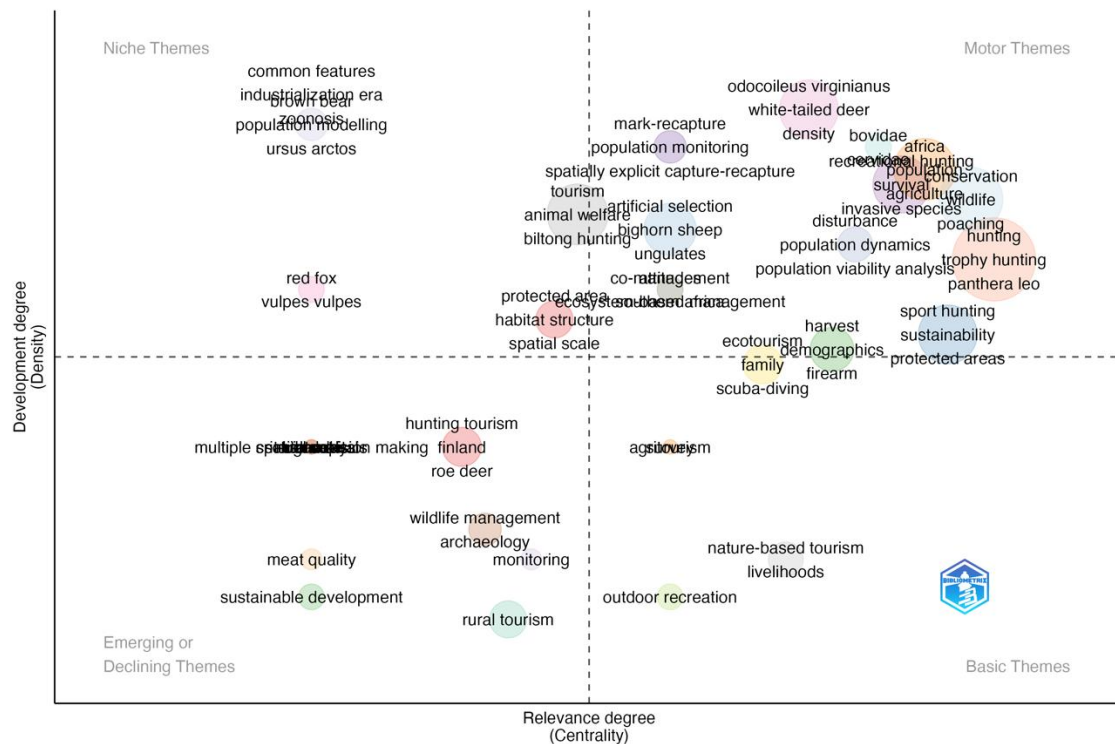


Source: own elaboration based on VosViewer.

Figure 5. Network of co-Occurrence of Authors' Keywords

The upper right quadrant of *Figure 6* indicates abundant and varied driving themes. Keywords related to wildlife management, conservation and population dynamics dominate, suggesting that these are

fundamental concepts that drive research and debate. Terms such as wildlife, conservation and population take centre stage, indicating a strong emphasis on wildlife management. Keywords such as harvest, population viability and disturbance highlight the relevance of managing hunting activities such that they are sustainable for wildlife.



Source: own elaboration based on Bibliometrix.

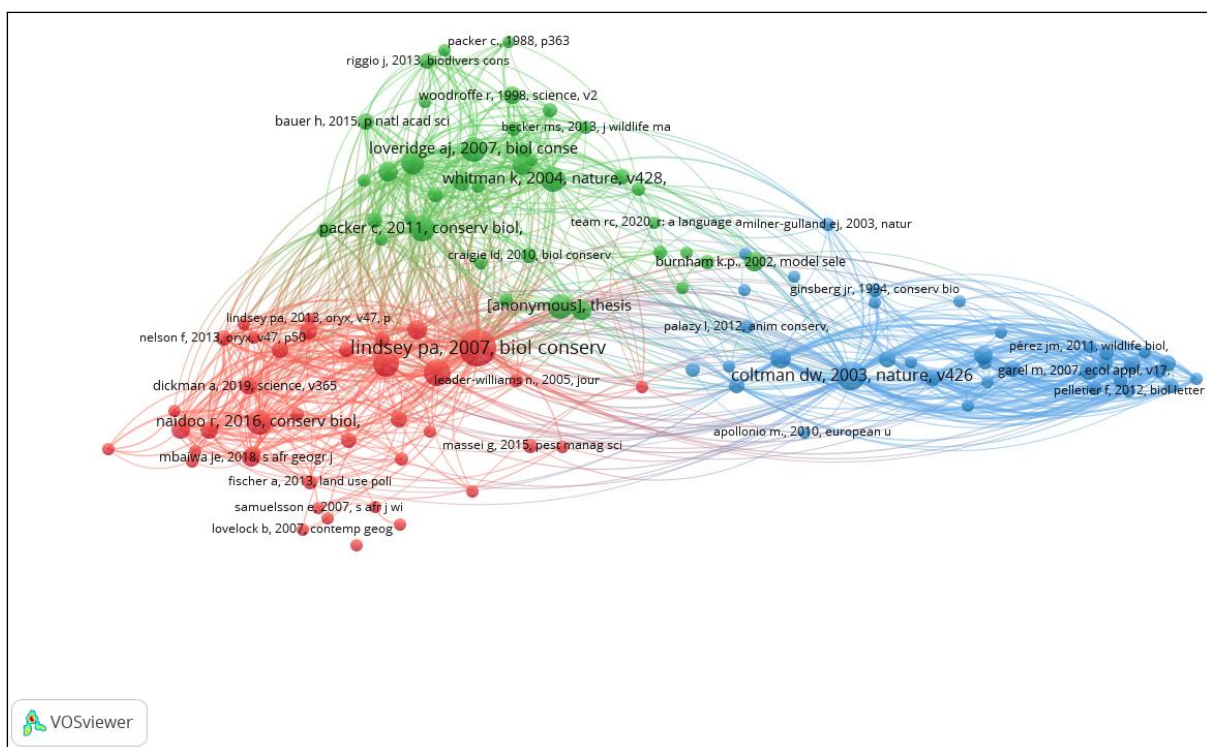
Figure 6. Thematic Map of the Literature

The top left quadrant denotes niche themes, presenting keywords related to specific ecological concepts and species and suggesting that research is exploring more specialised areas within the field. Indeed, terms such as *ursus arctos* (brown bear), *panthera leo* (lion) and *odocoileus virginianus* (white-tailed deer) indicate that research is focusing on specific species, and keywords such as habitat structure, spatial scale and population monitoring suggest an interest in understanding the ecological processes that affect wildlife. The lower right-hand side concentrates on basic topics and fundamental concepts related to hunting and tourism. Keywords such as hunting, tourism and outdoor recreation represent key activities and interests within the field, and terms such as livelihoods and nature-based tourism imply an interest towards understanding the social and economic dimensions of hunting and tourism. Finally, in the lower left quadrant are emerging or declining themes, possibly indicating areas of research that are emerging or declining in importance. Keywords such as rural tourism, sustainable development, meat quality and monitoring suggest possible areas of future research and growth.

3.3 Co-Citation Analysis

The analysis of co-citation of documents enables the exploration of the intellectual structure of the studied subject. Figure 7 denotes the network of co-citations per article. The minimum number of citations of a reference was 15, yielding 113 most co-cited references grouped in three clusters and

central nodes. All clusters have approximately the same number of references (36–38). In the centre, there is a prominent, red-coloured cluster around the article by Lindsey *et al.* (2007), underscoring that this article—in which the authors analysed the magnitude of the trophy hunting industry and assessed the positive and negative aspects of hunting and conservation in Africa as quite influential—is frequently cited with other articles in the cluster such as Di Minin *et al.* (2016), which overviewed literature on recreational hunting of birds and terrestrial mammals in 1953–2020; Naidoo *et al.* (2016), which used data collected annually from 77 communal conservancies in Namibia to determine whether benefits were derived from hunting or tourism; Lindsey *et al.* (2016), which used the incident of the illegal killing of a radio-collared lion by a trophy hunter in Zimbabwe to shift the focus of the debate and call for global action; and Mbaiwa (2017), which examined the effects of the 2014 safari hunting ban on rural livelihoods and wildlife conservation in northern Botswana using social exchange theory. In the red cluster, the grouping around these main references indicates that research on wildlife conservation and management strategies is closely connected and likely influential in the field, considering they are cited along with several other works.



Source: own elaboration based on VosViewer.

Figure 7. Network of co-Citations by Articles

The second cluster is green, with four references as main nodes. In these, Packer *et al.* (2011, 2009) summarised lion population trends in protected areas where lion abundance has been measured directly and the frequency of lion attacks on humans in highly contested agricultural areas. Loveridge *et al.* (2007) conducted an ecological study of African lions (*Panthera leo*) in Hwange National Park, western Zimbabwe, to measure the impact of sport hunting outside the park on the lion population within the park, using radio telemetry and direct observation. Whitman *et al.* (2004) simulated the population consequences of lion trophy hunting using a spatially explicit, individual-based stochastic model

parameterised with 40 years of demographic data from northern Tanzania. Therefore, this is a thematic area related to ecological research on predator–prey interactions and wildlife behaviour.

Finally, the blue cluster presents Coltman *et al.* (2003), Festa-Bianchet *et al.* (2003), Milner *et al.* (2007) and Allendorf (2009) as main references with a common theme around the dynamics of wild populations, i.e. their exploitation, growth and control. These nodes are strongly connected by thick lines, indicating that these articles are frequently cited together and suggesting a strong association between their research topics or findings.

4. Discussion

The bibliometric results denote how research on trophy hunting, recreational hunting and hunting tourism has evolved over the past 5 decades. Scientific production has remarkably increased since the mid-1990s, reflecting rising public attention and policy relevance. The surge in publications after 2013 coincides with renewed debates on wildlife conservation, sustainable tourism and the socio-economic implications of hunting. Leading authors such as Lindsey, MacDonald and Loveridge, along with journals including *Biological Conservation*, *Journal of Wildlife Management* and *Conservation Biology*, illustrate the strong field anchoring in conservation science and ecology, with notable contributions from tourism studies and environmental economics.

The keyword co-occurrence analysis highlights three dominant themes: ‘conservation of protected areas’, ‘hunting tourism’ and ‘trophy hunting within wildlife management’; these clusters persistently focus on ecological impacts, management strategies and the broader conservation context in which hunting activities occur. The prominence of terms such as ‘wildlife’, ‘conservation’ and ‘population dynamics’ confirms the centrality of ecological perspectives. Meanwhile, the presence of species-specific keywords (e.g. *Ursus arctos* and *Panthera leo*) shows an ongoing interest in detailed ecological and behavioural studies. Beyond providing a descriptive overview of the field, these patterns delineate distinct intellectual streams that can be considered conceptual building blocks for future theory development on trophy and recreational hunting tourism within the broader domains of sustainable tourism and conservation policy.

Basic themes, including ‘hunting’, ‘tourism’ and ‘outdoor recreation’, form the conceptual foundation of the field. Emerging or less consolidated topics, such as rural tourism, sustainable development and wildlife monitoring, suggest a growing convergence among ecological research, tourism studies and socio-economic analysis. These areas offer opportunities for more integrative approaches, especially those linking hunting tourism to community livelihoods and long-term conservation outcomes.

The co-citation analysis further clarifies the intellectual structure of the field. One major cluster centres on economic and conservation assessments of trophy hunting, particularly in Africa. The prominence of Lindsey *et al.*'s (2007) work and related studies indicates that debates on economic incentives, conservation financing and community benefits remain central. A second cluster focuses on predator ecology and selective harvesting, with influential contributions analysing lion populations and the demographic impacts of sport hunting. A third cluster addresses population dynamics and hunter-induced selection, underscoring the fundamental biological research underpinning sustainable management practices.

Recent publications are shaping the contemporary debate. For example, studies in 2024 emphasise the potential of hunting tourism for regional development and highlight its economic relevance, particularly

for trophy hunting (Prevolšek *et al.*, 2024). New research on public perceptions shows that attitudes towards trophy hunting is pragmatic rather than purely ideological, balancing concerns over animal welfare with possible conservation and economic gains (Hare *et al.*, 2024). Research on community impacts highlights expected benefits and emerging tensions, such as resource competition and uneven revenue distribution, as illustrated in studies from Cameroon (Yasuda, 2023).

Ethical and conservation debates remain active and often polarised. Some recent reports question whether trophy hunting delivers real conservation or socio-economic benefits, arguing that it may contribute to unsustainable resource use and conflict with broad biodiversity targets (Humane World for Animals, 2022). Others call for evidence-based regulation rather than sweeping bans, emphasising that well-managed hunting can support habitat protection and generate income for local communities (Yeomans *et al.*, 2022).

Finally, research on the relevance of hunting tourism for rural communities continues to grow. Recent evidence from South Africa suggests that hunters perceive their activities as contributing positively to local livelihoods, especially in regions with limited alternative income sources (Van der Merwe and Slabbert, 2025). These findings illustrate the complex and context-dependent nature of the debate and underscore the need for robust empirical research to inform policy.

Overall, the study of trophy hunting and hunting tourism is dynamic, multi-disciplinary and increasingly shaped by socio-ecological concerns. The evolution of the field suggests a shift towards more integrated analyses that combine ecological sustainability, community welfare, ethical considerations and economic valuation. This orientation aligns with broad global discussions on sustainable tourism and wildlife governance and highlights research agendas that bridge conservation biology, social science and policy analysis.

Conclusions

Trophy hunting, recreational hunting and hunting tourism continue to generate intense academic and public debate, particularly concerning sustainable tourism and wildlife conservation. Ethical concerns persist, yet a substantial body of research shows that, when well regulated, these activities can support ecological objectives and provide meaningful socio-economic benefits. The bibliometric evidence presented here confirms a steady and notable expansion of scientific interest, driven by broad societal concerns and evolving conservation paradigms.

A key historical shift identified in the literature is the transition from extraction-focused hunting practices to conservation-oriented models. By the mid-20th century, regulated trophy hunting became a potential conservation tool, introducing the principle of ‘sustainable use’. This perspective recognises that well-managed hunting can generate conservation revenue and create incentives for local communities to protect wildlife and habitats (Reiger, 2001).

Theoretical Implications

The study contributes to the theoretical understanding of trophy hunting and hunting tourism by mapping the intellectual development of the field and identifying its core conceptual foundations. The results highlight the strong inter-disciplinary character of the domain. Theories from conservation biology, environmental economics and tourism studies intersect to explain how wildlife, local economies and visitor motivations shape hunting-related activities.

Co-citation patterns reveal how early ecological and economic frameworks have evolved into more integrated socio-ecological perspectives. Recent scholarship increasingly emphasises the interdependence between human systems and wildlife, moving beyond narrow disciplinary boundaries. This evolution points towards a holistic theoretical foundation for understanding hunting tourism and its wide implications.

Methodological Implications

Methodologically, this study demonstrates the value of applying the SLNA approach to complex, multi-disciplinary fields. The combination of SLR principles with bibliometric network techniques allows for rigorous, transparent mapping of large research bodies. Using co-authorship, -occurrence and -citation analyses, the approach captures structural patterns that are often overlooked by conventional narrative reviews.

The detailed data cleaning, merging, and de-duplication procedures using RStudio and Bibliometrix provide a replicable model for future bibliometric work. This methodological contribution is relevant for scholars investigating similarly broad or fragmented research domains.

Managerial and Organisational Implications

The findings generate several insights for wildlife managers, policymakers and organisations involved in conservation and tourism. The identification of geographical research gaps—particularly in regions with strong hunting traditions—suggests the need for targeted investment in data collection and applied research. Strengthening the evidence base in these areas can support policy development and improve the sustainability of hunting practices.

The prominence of socio-ecological approaches reinforces the relevance of integrating ecological sustainability with community benefits and cultural perspectives. Therefore, effective policies should combine wildlife management objectives with local development goals, encouraging community involvement in decision-making. Emerging themes such as climate change impacts and technological innovation highlight areas where adaptive management and forward-looking policy frameworks are essential.

From a business and economics perspective, the bibliometric evidence reviewed in this study reveals that trophy and recreational hunting tourism operate through a range of distinct business models — including concession-based systems, specialised hunting outfitters and privately managed estates — which are integrated into wider tourism markets and regional value chains. Understanding how these models generate, distribute and capture economic benefits, and how they interact with regulatory, environmental and social constraints, is critical for designing socially acceptable and economically viable hunting tourism strategies. This positions our findings as directly relevant to the scope of business and economics research within the field of tourism and hospitality management.

Limitations

Despite the breadth of the analysis, several limitations should be considered. This study relied on publications indexed in Web of Science® and Scopus®. Although these are major academic databases, they may exclude relevant regional journals, grey literature or publications using less common terminology. Although the search strategy is systematic, it was shaped by the chosen keywords and may have overlooked studies using alternative phrasing.

As with most bibliometric studies relying on Web of Science and Scopus, our dataset is inevitably biased towards English-language, peer-reviewed journal articles and towards regions and institutions with stronger representation in these databases, which implies that non-indexed contributions and publications in other languages may be under-represented. Future research could therefore complement these findings by consulting additional regional databases or grey literature sources.

Bibliometric analyses are also inherently retrospective. Although they reveal past and current trends, they cannot completely capture rapidly emerging topics. Moreover, quantitative mapping does not replace the qualitative analysis of individual studies; rather than detailed textual examination, interpretations rely on patterns in keywords and citations.

Future Research Directions

The findings point to several promising avenues for future research:

1) Regional and biodiversity-focused studies

Future studies could conduct more localised analyses focusing on specific continents or countries (e.g. Africa, North America and Europe) to provide deeper insights into regional research landscapes, unique challenges and policy contexts, especially in regions with identified research deficits. The idea that trophy hunting can contribute to conservation efforts gained momentum because organisations such as the International Union for Conservation of Nature (IUCN) recognised the potential of trophy hunting revenues to support wildlife management and community development (IUCN SSC 2012). Proponents of the role of hunting tourism in conservation argue that it can support conservation efforts. Hunting, if properly managed, can provide economic incentives for habitat and wildlife protection (García Nieto *et al.*, 2013). Therefore, few integrated studies have examined the long-term ecological impacts of hunting tourism and develop models for sustainable management; thus, a literature review on whether regulated hunting can support biodiversity conservation by managing species-specific populations and habitats could help develop and test indicators of sustainable hunting tourism practices.

2) Ethical, emotional and cultural concerns and social impact perspectives

Ethical considerations surrounding hunting tourism are a key issue. Critics question the morality of recreational or trophy hunting, especially concerning endangered species (Mknoo and Holder, 2019; Conover, 2001).

The social acceptability of hunting tourism and its cultural implications remain understudied. Inter-disciplinary research combining anthropological, sociological and tourism studies approaches could provide an in-depth data on these aspects.

An analysis from the societal cultural significance perspective is necessary. For some communities, hunting tourism represents a link to traditions and heritage, fostering cultural exchange and understanding. Simultaneously, ethical vs. emotional, cultural and social implications can be contrasted. Some studies explore the social impacts of hunting tourism (Rescia *et al.*, 2010); Peterson *et al.* (2015) explored how hunting fosters social awareness of human–nature relationships, including emotional connections and cultural traditions; although hunting can contribute to local economies, it can have negative social effects, such as changes in community dynamics or in the perception of local cultures.

3) Governance, policy and regulatory impacts

Effective policy action is crucial in trophy hunting and hunting tourism. Strict regulations and quotas should be implemented to ensure sustainable hunting practices and avoid over-exploitation of wildlife. Thus, policies prioritising biodiversity conservation should be formulated, while recognising the potential economic and social benefits of responsible hunting and tourism. As noted by Crosmary *et al.*, this could involve integrating conservation into hunting management. (2015), who assessed the role of trophy hunting in conservation and underlined the need for effective policies, including quotas and monitoring, to avoid over-exploitation and ensure sustainable wildlife management. From a policy viewpoint, legislation must be transparent and well-enforced and community participation in decision-making must be prioritised for public administrations. Proper management ensures sustainability, prevents over-exploitation and poaches and protects endangered species (Benjaminsen *et al.*, 2013). Thus, future research could investigate how different stakeholder perspectives (e.g. local communities, conservationists, hunters and tourism operators) are represented and debated within the academic literature.

5) Emerging technologies and climate change for sustainability and long-term effects

The long-term effects of hunting tourism on ecosystems, species populations and overall environmental health are often discussed (Broadbent *et al.*, 2012). In this sense, analysing the sustainability and ecological effects of hunting activities and linking this to effective policymaking is necessary for public and private stakeholders. In addition, given the identified emerging themes, dedicated research is needed on the role of technological advances (e.g. remote sensing, AI in wildlife monitoring and genetic analysis) in sustainable hunting management and the multifaceted impacts of climate change on hunting tourism, including species distribution shifts, habitat alterations and socio-economic vulnerabilities.

6) Economic valuation and rural development dynamics

Although economic impact studies are common (Saayman *et al.*, 2018), there may be sophisticated economic analyses of the role of hunting tourism in rural development. Future studies could employ advanced modelling techniques to forecast long-term economic impacts and develop adaptation strategies for economic resilience. Revenues from hunting permits, accommodation, travel and related services considerably contribute to the local economy, supporting communities and conservation efforts (Van der Merwe *et al.*, 2014). Economic incentives can preserve habitats and wildlife or rehabilitate natural areas, outweighing the benefits of other land-use practices.

Overall, this study highlights the dynamic and multi-disciplinary nature of research on trophy hunting and hunting tourism. It underscores the growing relevance of integrative approaches connecting ecological knowledge with social, ethical and economic considerations. As global pressures on biodiversity intensify, rigorous, context-sensitive research on sustainable wildlife use becomes increasingly crucial.

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TROFĖJŲ MEDŽIOKLĖS IR REKREACINIO MEDŽIOKLĖS TURIZMO TYRIMŲ TENDENCIJOS: BIBLIOMETRINIS POŽIŪRIS (1971–2024)

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Santrauka. Rekreacinė ir trofėjų medžioklė yra prieštarai vertinamos praktikos formos, kurios susikerta su ekologinio išsaugojimo, etinių diskusijų ir socialinio bei ekonominio vystymosi sritimis. Šia tema atlikta tik keletas tyrimų, todėl šiame tyrime analizuojama mokslinė literatūra apie pramoginę ir trofėjų medžioklę taikant sisteminę literatūros tinklo analizės metodiką. Tyrimo metu naudota bibliometrinė programinė įranga „Bibliometrix“ ir „VOSviewer©“ siekiant išanalizuoti 1559 mokslinius leidinius, atrinktus iš „Web of Science©“ ir „Scopus©“ duomenų bazių nuo 1971 iki 2024 m. Geografiškai tyrimų stinga regionuose, kuriuose medžioklė yra svarbi kultūrinės tradicijos dalis. Tyrimas yra reikšmingas tiek akademinio, tiek politikos formavimo požiūriu, nes sudaro pagrindą būsimiems tyrimams ir įrodymais grįstai trofėjų medžioklės politikai, galinčiai užtikrinti socialinę ir ekonominę naudą.

Reikšminiai žodžiai: medžioklės turizmas; tvarus turizmas; etika; laukinės gamtos apsauga; socialinis ir ekonominis poveikis.