

Interdisciplinary bibliometric analysis of research trends in indigenous cultural preservation and community development

Karla Martell-Alfaro^{1,*}, José Seijas-Díaz¹, Juan Schrader¹, Rosa Cueto-Orbe¹, Enrique Barbachán-Ruales²

¹ Facultad de Ciencias Económicas, Administrativas y Contables, Universidad Nacional Autónoma de Alto Amazonas, Peru.

² Universidad Nacional de Educación Enrique Guzmán y Valle, Peru.

* Corresponding author

Email: kmartell@unaaa.edu.pe. ORCID: <https://orcid.org/0000-0002-4416-8740>

ABSTRACT

Objective. A bibliometric analysis of research on indigenous cultural preservation was performed to identify thematic areas, academic collaboration, and the impact of utilitarian arts.

Design/Methodology/Approach. A bibliometric approach was employed, drawing upon Scopus data from 1986 to 2024. This approach entailed the analysis of thematic areas, international collaboration, and impact metrics. The management of the data was conducted in Mendeley, and the analysis was carried out using VOSviewer to identify collaboration patterns, thematic clusters, and the impact of utilitarian arts.

Results/Discussion. A comprehensive review of the extant literature yielded 574 documents addressing the subject of indigenous cultural preservation. These articles were classified into a wide range of thematic areas, with the majority falling within the domains of the social sciences, arts and humanities, and environmental sciences. The analysis indicated the presence of significant international collaboration, although opportunities persisted to fortify relations between developed and developing countries. A steady increase in the number of publications in recent years was also observed, indicating growing interest in this field.

Conclusions. Research on indigenous cultural preservation is interdisciplinary in nature, with a strong emphasis on the social sciences and humanities, and it is characterized by a growing international collaboration. While utilitarian arts and ecotourism hold relevance, their bibliometric impact is moderate. Gaps persist in areas such as indigenous languages and quantitative approaches.

KEYWORDS: international collaboration; indigenous knowledge; bibliometric impact; interdisciplinarity; cultural sustainability.

Received: 26-11-2024. **Accepted:** 11-12-2024. **Published:** 15-11-2025.

How to cite: Martell-Alfaro, K., Seijas-Díaz, J., Schrader, J., Cueto-Orbe, R., Barbachán-Ruales, E. (2026). Interdisciplinary bibliometric analysis of research trends in indigenous cultural preservation and community development. *Iberoamerican Journal of Science Measurement and Communication*; 6(1), 1-13. DOI: 10.47909/ijsmc.1674

Copyright: © 2026 The author(s). This is an open access article distributed under the terms of the CC BY-NC 4.0 license which permits copying and redistributing the material in any medium or format, adapting, transforming, and building upon the material as long as the license terms are followed.

1. INTRODUCTION

THE CULTURAL preservation of indigenous communities is a matter of significant concern on the global agenda, as it pertains to the safeguarding of ancestral knowledge, languages, and traditions in the face of rapid social and economic transformation (Heald, 2024; Santano *et al.*, 2024). Research conducted by Chakma and Chakma (2024), Delina *et al.* (2024), and Denniston (1995), among others, has underscored the significance of cultural practices in enhancing environmental resilience and fostering community sustainability. According to Depiné and Oka Fiori (2005) and Miniaka *et al.* (2024), these approaches underscore the role of indigenous communities not only as knowledge custodians but also as pivotal actors in socioecological balance. Bibliometric analysis provides a quantitative framework for mapping the intellectual structure and evolution of a research field, offering insights that complement qualitative or systematic reviews. In the context of indigenous cultural preservation, such an approach enables the identification of emerging research fronts, collaboration networks, and thematic clusters that reflect the interdisciplinary nature of this domain (Aria & Cuccurullo, 2017; Donthu *et al.*, 2021). Over the past two decades, international initiatives spearheaded by UNESCO and IPBES have placed mounting emphasis on the preservation of indigenous knowledge systems as a fundamental component of sustainable development. This focus has given rise to a consistent augmentation in academic output, particularly within the geographical confines of Latin America, Oceania, and Southeast Asia. Within this expanding body of work, utilitarian arts—including crafts, pottery, and traditional design—represent a distinctive yet under-explored research stream. This stream links cultural identity with livelihood sustainability and social innovation. The objective of this study is to utilize bibliometric techniques to elucidate the evolution, interaction, and influence of these interconnected themes on the broader discourse concerning cultural preservation and community development.

In light of this mounting academic interest, it becomes imperative to comprehend not only the content but also the structure and evolution of research on indigenous cultural

preservation. By examining the historical evolution of this field, we can gain a more nuanced understanding of its interdisciplinary nature and global scope. The relationship between indigenous communities and their environment elucidates an inherent connection between cultural practices and sustainability. Kolbovsky *et al.* (2019) underscore the importance of preserving ecosystems like mountain landscapes, which are deeply tied to local communities' worldviews. In a similar vein, Lee and Yan's (2019) study examined the resilience of rice production in indigenous landscapes, illustrating how traditional practices can be integrated with contemporary approaches to address challenges posed by climate change. These findings are consistent with those of Depiné and Oka Fiori (2005) and Valle-Díaz *et al.* (2023), who examined the potential for cultural legacies to align with environmental conservation in archaeological contexts. Despite the proliferation of qualitative and ethnographic studies addressing indigenous cultural heritage, there remains a paucity of systematic evaluations that reveal how this knowledge has evolved across disciplines, countries, and time. The majority of research remains fragmented across anthropology, sociology, and environmental studies, which complicates the understanding of the field's interdisciplinary dynamics. Bibliometric analysis provides a robust quantitative method for identifying such patterns, allowing scholars to assess the evolution, collaboration networks, and scientific impact of research on indigenous cultural preservation (Aria & Cuccurullo, 2017; Donthu *et al.*, 2021). This approach enables the visualization of not only the thematic concentration of research but also the global interconnections that shape knowledge production in this domain.

Another pivotal area of focus in the extant literature pertains to the preservation of knowledge systems. Miniaka *et al.* (2024) analyze indigenous calendars as instruments for comprehending natural cycles and advocating for sustainable agriculture, while Sani *et al.* (2012) document the digitalization of indigenous languages in Indonesia as a strategy for revitalizing multilingualism. As has been previously emphasized in numerous studies, indigenous languages function as pivotal conduits for the transmission of ancestral knowledge

and cultural identity (Espiritu, 2024; Ghose & Ali, 2023). Furthermore, iconography and utilitarian arts play a pivotal role in cultural promotion. According to Di Salvo (2019), indigenous communities have employed these artistic forms not only to preserve traditions but also to generate sustainable economic resources. Research conducted in the Philippines, as exemplified by Bicular (2025), underscores the efficacy of integrating indigenous values within media to facilitate cultural dissemination. These perspectives are in alignment with those of Berililana *et al.* (2021), who emphasize that art can serve as a potent instrument for the integration of both tangible and intangible heritage. While these studies address critical dimensions of cultural preservation, there is a need to deepen methodological approaches and explore the most researched thematic areas. A review of works by Denniston (1995) and Ghose *et al.* (2024), for instance, reveals the continuous expansion of research into interdisciplinary areas. The identification of these trends will facilitate the clarification of academic priorities and potential knowledge gaps. Therefore, it is imperative to inquire: What are the main thematic areas and methodological approaches used in research on indigenous cultural preservation and its link to sustainable development?

Despite the growing recognition in recent scholarship of the significance of utilitarian arts—including crafts, design, and traditional material practices—in fortifying cultural identity and fostering sustainable livelihoods (Di Salvo, 2019; Espiritu, 2024; Ghose & Ali, 2023), their representation in bibliometric analyses remains underwhelming. This discrepancy underscores the necessity to investigate the manner in which such artistic expressions have been incorporated within the broader scientific discourse on indigenous knowledge and sustainable development. The utilization of bibliometric indicators in mapping this relationship can illuminate underrepresented themes and facilitate the alignment of future research agendas with community-based cultural priorities. Furthermore, research on cultural preservation is distributed across a variety of regions and cultural contexts. According to Cámara-Leret and Bascompte (2021) and Novozhilov (2022), studies on indigenous languages and practices have gained global relevance, albeit with

marked regional differences in academic collaboration. The exploration of international researcher interaction will facilitate the identification of knowledge networks and areas of opportunity. Consequently, the following inquiry emerges: What patterns of academic collaboration and geographic distribution stand out in studies on indigenous iconography and cultural promotion?

Finally, the relationship between utilitarian arts and cultural preservation has been examined from both cultural and academic perspectives. Research on utilitarian arts—including pottery, music, crafts, and other material expressions—demonstrates a mounting interest in incorporating traditional components into sustainable development strategies (Espiritu, 2024; Ghose *et al.*, 2024). However, there is a paucity of investigations that have employed bibliometric approaches to assess their scientific productivity, citation impact, and patterns of collaboration. The objective of this analysis is to map the state of the art by identifying citation patterns, scientific productivity, and interdisciplinary collaboration. This will establish a solid foundation for future research that is aligned with the realities and aspirations of indigenous communities. Therefore, this study employs a bibliometric approach to systematically examine thematic trends, collaboration networks, and citation dynamics related to indigenous cultural preservation, offering a quantitative basis for understanding the evolution and global distribution of research on this topic.

2. METHODOLOGY

This study adopted a mixed bibliometric-content analysis approach to ensure both quantitative rigor and qualitative depth. The bibliometric component yielded quantifiable indicators of scientific productivity, collaboration, and thematic progression. Concurrently, content analysis facilitated contextual interpretation of the most impactful documents. This combined approach aligns with the methodological frameworks established by Garrigos-Simon *et al.* (2018) and Merigó *et al.* (2019), which underscore the integration of performance indicators and thematic mapping to facilitate a comprehensive understanding of research dynamics. The bibliographic search was conducted in

the Scopus database, which was selected for its wide disciplinary coverage, standardized metadata, and compatibility with bibliometric visualization tools. The search strategy was implemented in November 2024, employing the following query: *TITLE-ABS-KEY("indigenous" AND "communities" AND "cultural" AND "preservation")* to capture studies explicitly addressing indigenous cultural preservation. Filters were applied to include only peer-reviewed articles, written in English, and published between 1986 and 2024. To ensure data consistency, conference papers, book chapters, and editorials were excluded from the analysis. The final dataset comprised 574 documents, representing a 38-year period suitable for longitudinal trend analysis.

The bibliographic records were exported in CSV format and organized in Mendeley for reference management and duplication control. Subsequently, VOSviewer (van Eck & Waltman, 2010) was employed to conduct the bibliometric analyses. Keyword co-occurrence and co-authorship networks were generated to identify major research themes, collaborative clusters, and emerging areas. A minimum threshold of five occurrences per keyword was applied to reduce noise and emphasize significant conceptual linkages. Network maps were subjected to visual analysis, with particular attention directed towards cluster density and link strength, to elucidate the thematic interrelations that were observed. The analysis employed a combination of fractional counting, which was utilized to normalize co-authorship links, and full counting, which was employed for the purpose of examining keyword co-occurrence. This methodological approach yielded a balanced perspective on collaboration intensity and thematic emphasis. Finally, the bibliometric outputs were complemented with qualitative content analysis of the most cited and thematically central papers in each cluster. The interpretation phase enabled the validation of automated results through expert judgment. The research team, comprised of specialists in administration, accounting, and tourism, provided an interdisciplinary perspective to contextualize bibliometric findings within broader sociocultural frameworks. This integration ensured analytical depth and relevance, leading to a comprehensive overview of scientific production on

indigenous cultural preservation. To ensure the transparency and reproducibility of the results, all analytical procedures were meticulously documented. The following section presents the findings derived from the aforementioned procedures. These findings outline the thematic areas, collaboration patterns, and bibliometric impact that were observed in the dataset.

3. RESULTS AND DISCUSSION

3.1. Thematic areas and methodological approaches in research on indigenous cultural preservation

The thematic distribution of the 574 documents, as revealed by the bibliometric mapping performed in VOSviewer, exhibits a distinctly interdisciplinary configuration that bridges the social sciences, arts and humanities, and environmental sciences (Figure 1). The social sciences are responsible for approximately one-third of the studies, followed by the arts and humanities and environmental sciences, which account for around 10% of the total. A multitude of studies from disparate fields, including but not limited to agricultural sciences, computer science, and business management, have demonstrated a marked convergence between sustainability, technology, and socioeconomic development within the domain of indigenous knowledge research. This disciplinary convergence reflects an ongoing transition from traditional anthropological and ethnographic inquiry toward a broader, multidimensional science of cultural sustainability that integrates both qualitative and quantitative approaches (Datta, 2024; Tiwari, 2024).

While the preeminence of social and environmental sciences is unmistakable, less-represented disciplines such as medicine, energy, and psychology suggest a wealth of potential for future exploration, particularly in the domains of indigenous health, innovation, and community well-being. Their limited presence suggests that research on cultural preservation still underrepresents vital aspects of social welfare and mental resilience, which could further enrich the holistic understanding of indigenous societies (Nam & Thanh, 2024). The integration of these disciplines would facilitate a more comprehensive examination of the intersection

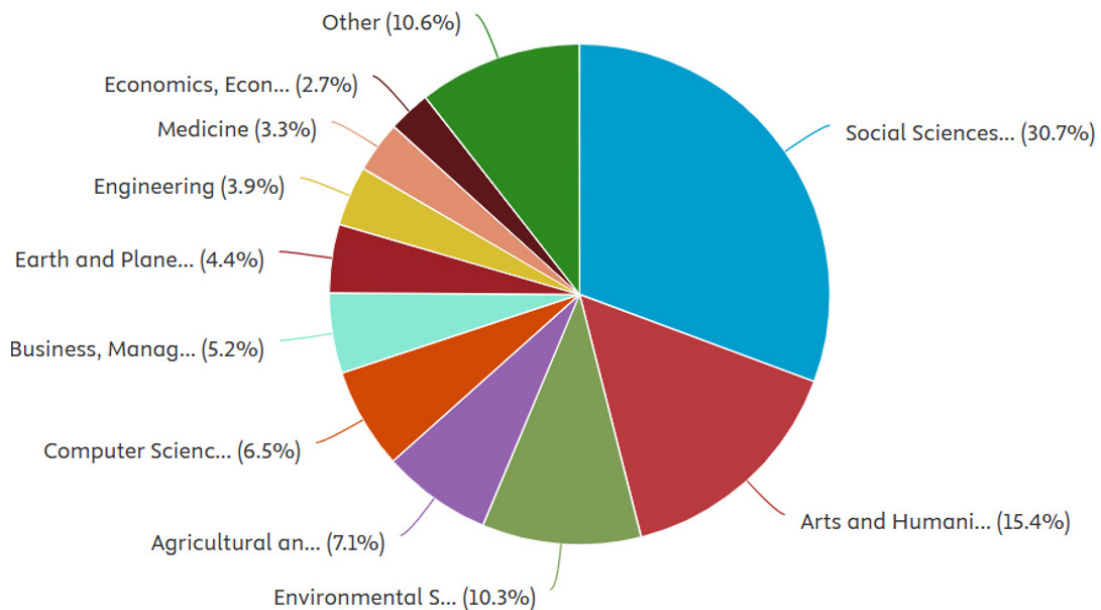


Figure 1. Interdisciplinary distribution of research in indigenous cultural preservation.

of cultural and ecological dimensions with well-being and adaptive capacities in community development. A comprehensive analysis of keyword co-occurrence revealed the presence of five distinct conceptual clusters, which

collectively delineate the intellectual framework underpinning this research domain (Figure 2). The initial cluster links human factors, gender, and ethnobotanical knowledge, underscoring the significance of ancestral ecological

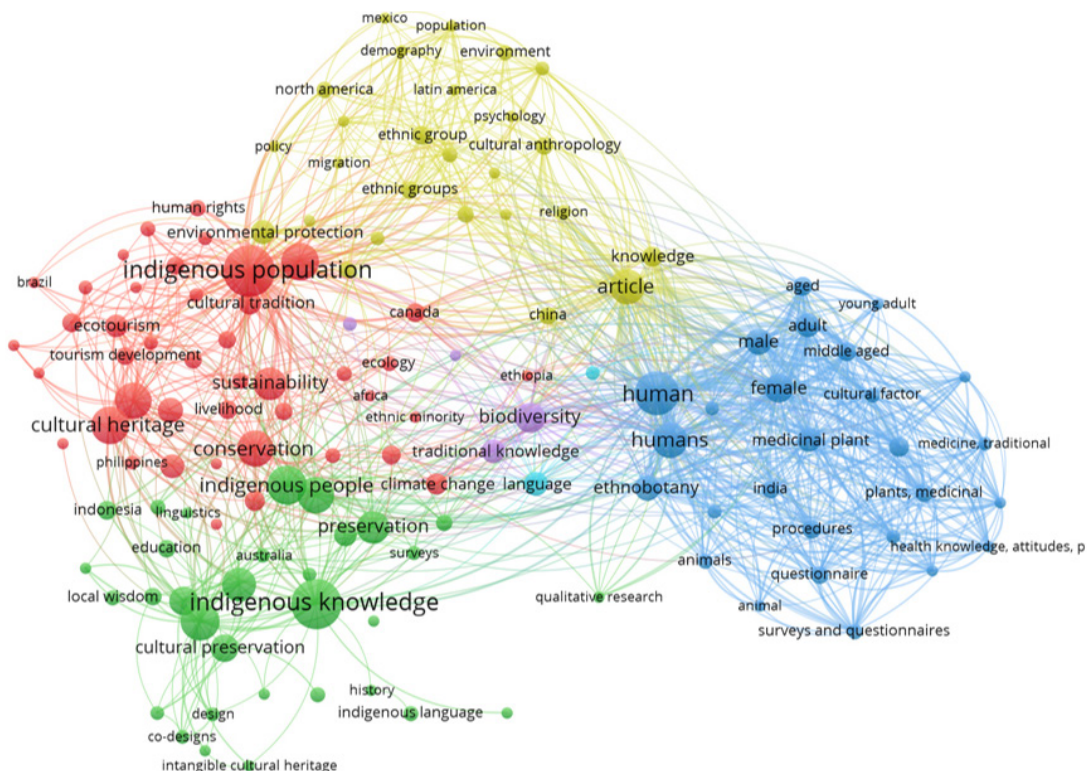


Figure 2. Keyword mapping in indigenous cultural preservation research.

wisdom and its function in sustainable resource management (Datta, 2024). The second cluster encompasses natural-resource conservation and global environmental awareness, linking local practices with international environmental discourse —particularly in regions such as China and Southeast Asia. A third cluster integrates sustainable tourism, cultural heritage management, and ecotourism, illustrating the transformative capacity of tourism to empower communities and foster environmental stewardship (Hussain *et al.*, 2024; Pachón & Martínez, 2024). The fourth conceptual area focuses on traditional knowledge systems and community resilience, positioning indigenous peoples as active custodians of ecological intelligence and stewards of their environments (Nam & Thanh, 2024). Finally, the fifth cluster elucidates the interconnection between biodiversity, language revitalization, and material culture, demonstrating how linguistic diversity and creative expression sustain the transmission of cultural identity across generations (Hussain *et al.*, 2024; Sholeh & Muttaqin, 2024).

When considered as a whole, these clusters delineate an evolving intellectual structure in which ecology, heritage, and creative expression converge. The field of research is undergoing a progressive shift from locally grounded ethnographic documentation to globally networked frameworks that integrate sustainability, communication, and design. The increasing integration of utilitarian arts, including crafts, music, and digital media, exemplifies the reinterpretation of creative practices as mechanisms for resilience, identity construction, and cultural continuity (Gadan & Zhang, 2024; Whitehair *et al.*, 2024). Collectively, these findings underscore a progressive hybridization of methods and perspectives, aligning indigenous cultural preservation with broader discourses on sustainable development and intercultural collaboration.

3.2. Patterns of academic collaboration and geographic distribution of research

The global distribution of research on indigenous cultural preservation, as derived from authors' institutional affiliations, reflects a geographically diversified yet asymmetrical academic landscape (Figure 3). The United States

is the global leader in scholarly output, with 126 publications, followed by India (40) and Canada (36). Other countries, including Australia and Indonesia, have each contributed 33 studies, while Russia has contributed 23. Within Latin America, Mexico (18) and Colombia (15) emerge as the primary contributors, thereby reinforcing the region's growing commitment to cultural sustainability and heritage-based development. This pattern demonstrates that while research leadership remains concentrated in high-income nations, emerging economies are increasingly active in documenting and valorizing their indigenous heritage (Montes *et al.*, 2023; Perez-Moreno, 2024). The preponderance of nations such as the United States, Canada, and the United Kingdom underscores the pivotal role of research infrastructure and funding availability in shaping global knowledge production (Darbonne, 2023). Conversely, the rise of nations such as India, Indonesia, and South Africa indicates a paradigmatic shift toward contextualized scholarship that integrates local epistemologies and community-driven approaches (Radebe, 2022). Within the Latin American context, Mexico and Colombia emerge as notable regional academic hubs, contributing to cross-cultural studies that explore the intersection of indigenous cultural identity and sustainable territorial management (Botero, 2021). This collective distribution serves to substantiate the global scope of indigenous cultural preservation studies. However, the persistent North-South asymmetries indicate a necessity for more inclusive research partnerships and capacity-building initiatives (Heeringa *et al.*, 2019).

A thorough analysis of international co-authorship and institutional collaboration networks reveals the presence of robust partnerships among universities and research centers in North America, Europe, and Oceania. Prominent linkages have been identified between the United States and Canada, as well as between Australia, India, and Southeast Asian countries, suggesting the formation of cross-continental research clusters (Figure 3). These networks underscore not only the exchange of technical expertise but also the diffusion of methodological innovations, including digital heritage mapping and participatory ethnography (Waisserova, 2022). The involvement

of countries such as Indonesia, South Africa, Mexico, and Colombia underscores a deliberate effort to connect local realities with the global

academic ecosystem, aligning with UNESCO's agenda for intercultural knowledge transfer and heritage co-management (Sá *et al.*, 2024).

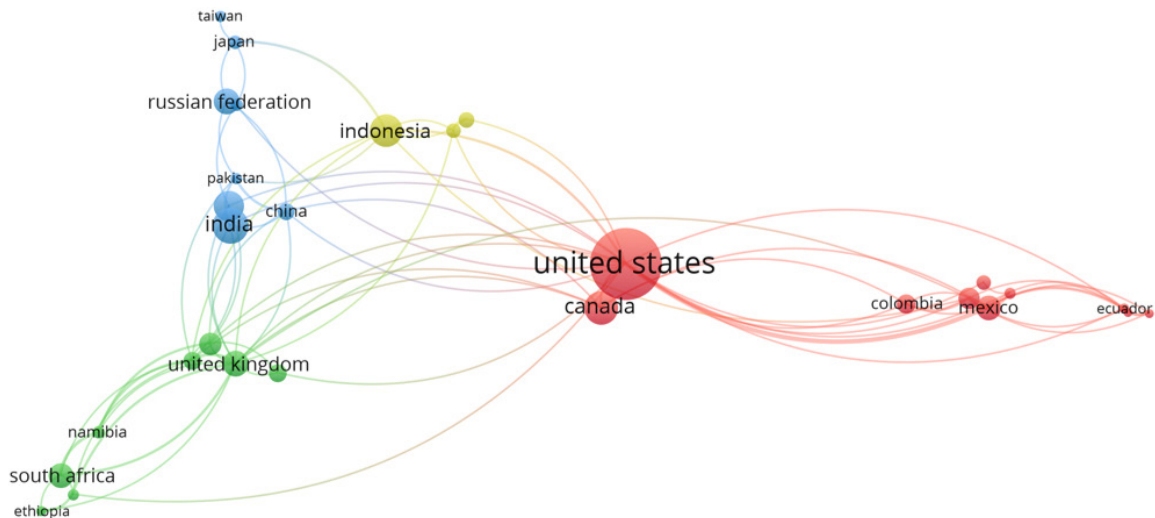


Figure 3. Network for international collaboration among countries on research on indigenous cultural preservation.

From a bibliometric perspective, the most influential publication venues reinforce this interdisciplinary and international character. The ACM International Conference Proceedings Series is the first of these, with a total of 12 publications. It is followed by the IOP Conference Series: Earth and Environmental Science (8). Specialized journals such as the *Journal of Cultural Heritage Management and Sustainable Development* (6) and *Studies in Conservation* (5) play a central role in consolidating methodological discussions on heritage documentation and conservation. Concurrently, *Sustainability (Switzerland)* has made a substantial contribution, with five publications, thereby serving as a conduit between heritage research and environmental policy. This concentration of publications in sustainability-oriented journals reflects a growing recognition of indigenous knowledge as a critical dimension of environmental governance and community resilience (Schumann *et al.*, 2021). A comprehensive analysis of the geographic and collaborative distribution of research in the field of indigenous cultural preservation reveals that it has reached a stage of global visibility and methodological diversification. Nevertheless, disparities in research leadership endure, underscoring the necessity of cultivating equitable

collaboration and enhancing the involvement of institutions from underrepresented regions. Enhancing South-South cooperation, coupled with the integration of indigenous scholars and organizations as active research partners, will be crucial for achieving a more balanced and culturally grounded knowledge ecosystem.

3.3. Bibliometric impact of utilitarian arts studies in cultural preservation

The temporal distribution of publications on indigenous cultural preservation demonstrates a consistent upward trajectory over nearly four decades, with particularly accelerated growth in the last five years. From sporadic publications during the late 1980s and 1990s, the field underwent a marked expansion after 2015, coinciding with the global diffusion of the United Nations Sustainable Development Goals and the rise of heritage-oriented digital initiatives (Huarachi *et al.*, 2024; Silva *et al.*, 2021). The number of published studies increased from 40 in 2021 to 47 in 2022 and to 72 in 2023. The trend reached its zenith in 2024, with a total of 112 documents, signifying the highest annual output since the field's inception. This sustained growth indicates the consolidation of indigenous cultural preservation as

a transdisciplinary research frontier, driven by the convergence of sustainability science, community-based art practices, and digital humanities (Rai *et al.*, 2024). The use of citation-based performance indicators serves to further substantiate this progressive maturation. The field's publications demonstrate an average of 6.92 citations per article, a figure consistent with the increasing interdisciplinary character of contemporary research domains. While this figure may appear modest in comparison to the high-impact areas of environmental science, it is indicative of the dissemination of research across a variety of thematic outlets, many of which prioritize regional or cultural specificity over the accumulation of mass citations (Botero, 2021). The most frequently cited works include “Local Perspectives of Ecotourism Development in Protected Areas” (157 citations), “Ethnobotanical Study of Medicinal Plants in the Amazon” (132 citations), and “Culturally Defined Keystone Species” (115 citations). These studies have become seminal references linking ecological knowledge, community empowerment, and sustainable tourism (Tiwari, 2024).

A notable insight from the citation network is the growing influence of research connecting utilitarian arts—crafts, textiles, music, and architectural design—with broader sustainability and identity discourses (Datta, 2024; Zuñiga, 2020). Despite comprising a smaller percentage of total publications, these subjects demonstrate disproportionately high engagement, as evidenced by metrics such as downloads, conference citations, and cross-disciplinary referencing. This suggests that utilitarian arts act as a bridge between scientific inquiry and community praxis, providing tangible avenues for cultural continuity, creative entrepreneurship, and gendered empowerment (Tharakan, 2015). The bibliometric network also reveals the rise of hybrid methodologies that integrate artistic expression with empirical social science. For instance, studies incorporating participatory design, indigenous aesthetics, and digital storytelling have gained visibility through interdisciplinary journals such as *Heritage Science* and *Arts and Humanities in Higher Education*, highlighting the relevance of cultural creativity as both subject and method (Reitsma *et al.*, 2013; Roy, 2015). The increasing overlap between traditional art forms and

sustainability-oriented innovation reflects a paradigm shift. Rather than being studied as static cultural expressions, utilitarian arts are now conceptualized as adaptive systems that embody resilience, knowledge transmission, and socioecological adaptation. A comprehensive analysis of bibliometric indicators reveals that the field is undergoing not only an expansion in quantity but also a diversification in influence. The incorporation of utilitarian arts into the body of research concerned with the preservation of indigenous cultures has resulted in a broadening of its epistemological and methodological reach. By integrating scientific rigor with creative practice, this emerging field of scholarship underscores the notion that cultural sustainability is inextricably linked to artistic agency and local innovation. Consequently, the utilitarian arts dimension—though modest in citation volume—has become a key intellectual catalyst for redefining how indigenous heritage is preserved, disseminated, and reimaged in contemporary academia.

3.4. Summary of findings and main contributions

The bibliometric synthesis confirms that research on indigenous cultural preservation constitutes a rapidly expanding and inherently interdisciplinary domain. Thematic convergence among traditional knowledge, sustainability, and cultural conservation underscores a global commitment to safeguarding intangible heritage through both qualitative and quantitative lenses (Irani *et al.*, 2024). The global distribution of studies reflects the predominance of contributions from the United States, India, and Canada, followed by increasing engagement from Latin American and Asian scholars, particularly in Mexico, Colombia, Indonesia, and the Philippines (Cabarcas Granados *et al.*, 2023; Delina *et al.*, 2024; Domínguez Núñez, 2022). This diversification is indicative of the emergence of regional research nodes that are actively facilitating the intersection of local cultural agendas with international frameworks of sustainable development. In this context, utilitarian arts—comprising crafts, design, and other material expressions—have achieved conceptual prominence yet remain underrepresented in quantitative analyses (Pachón &

Martinez, 2024). While these studies underscore the transformative potential of art-based practices for community empowerment, their bibliometric footprint remains modest in comparison to predominant fields such as ethnobotany and sustainable tourism (Hussain *et al.*, 2024). Nevertheless, their inclusion signals a paradigm shift toward integrating creativity and livelihood sustainability within heritage research, positioning the arts as mediators between cultural identity and socioeconomic innovation.

The analysis identified several research gaps that delineate promising directions for future inquiry. The initial point pertains to the circumscribed examination of indigenous languages as conduits of epistemic continuity and intergenerational knowledge transmission. Despite the prevalence of literature addressing the issue of language preservation, its presence remains marginal in terms of citation impact and network centrality, suggesting inadequate integration within cross-disciplinary studies (Espiritu, 2024; Ghose & Ali, 2023). A secondary gap pertains to the methodological disparity between qualitative ethnographic documentation and quantitative bibliometric or computational approaches. The utilization of mixed-method designs in this context has been demonstrated to enhance the analytical capacity to assess cultural resilience and its socioecological correlates (Ramos Farroñán *et al.*, 2024). In conclusion, an analysis of the collaboration patterns reveals the presence of enduring structural asymmetries between developed and developing nations. While the Global North maintains its leadership in publication volume and institutional networks, emerging regions in Latin America, Africa, and Southeast Asia contribute critical, community-grounded perspectives that enrich theoretical pluralism. It is imperative to enhance South-South cooperation and to increase the involvement of indigenous scholars within authorship networks to achieve a more balanced and decolonized research ecosystem. When considered as a whole, these insights indicate that the study of indigenous cultural preservation is evolving from an anthropological niche into a transdisciplinary knowledge domain. This new domain links creative practice, ecological stewardship, and social justice in the pursuit of cultural sustainability.

4. CONCLUSIONS

This bibliometric analysis demonstrates that research on indigenous cultural preservation has evolved into a robust and expanding interdisciplinary field. The social sciences, arts, humanities, and environmental sciences lead the global output, reflecting an integrative framework that links traditional knowledge with contemporary challenges such as sustainability, climate change adaptation, and biodiversity conservation. The convergence of these disciplines underscores a transition from localized ethnographic documentation to globally networked scholarship addressing the sociocultural dimensions of sustainability. The global scope and interconnectedness of this field are underscored by international collaboration, particularly among countries such as the United States, India, Canada, and Australia. Concurrently, the growing involvement of developing nations, including Mexico, Colombia, and Indonesia, signifies an expanding commitment to integrate local perspectives and culturally grounded methodologies into international research agendas. These developments indicate a gradual democratization of knowledge production, although asymmetries in research infrastructure and resource access persist.

Notwithstanding this progress, there are several thematic and methodological gaps that persist. The integration of indigenous languages as key vehicles for knowledge transmission remains limited, underscoring the need for more comprehensive and linguistically inclusive approaches. Furthermore, the utilization of quantitative and mixed-method analyses in cultural preservation studies remains underdeveloped in comparison to qualitative approaches, thereby constraining the comparability and scalability of findings. Furthermore, although utilitarian arts—such as crafts, design, and sustainable tourism—play a vital role in community identity and livelihood strategies, their bibliometric impact remains moderate, suggesting opportunities for deeper integration with economic, environmental, and educational frameworks. Taken together, these findings underscore the imperative for cultivating interdisciplinary approaches that seamlessly integrate cultural, technological, and ecological dimensions. Achieving a more balanced and

inclusive scientific landscape necessitates the strengthening of collaborative networks, the expansion of South-South partnerships, and the promotion of indigenous leadership in research design. The advancement of this agenda will not only enrich academic discourse but also contribute directly to the preservation, revitalization, and sustainable development of indigenous cultural heritage worldwide.

Conflict of interest

The authors declare that there are no conflicts of interest in this work.

Contribution statement

Conceptualization, data curation, formal analysis, acquisition of funds, investigation, project administration, supervision, validation, visualization, writing – original draft, writing – review and editing: Karla Martell-Alfaro, José Seijas-Díaz, Juan Schrader, Rosa Cueto-Orbe, Enrique Barbachán-Ruales.

Statement of data consent

The data generated during the study have been included in the article. 

REFERENCES

- ARIA, M., & CUCCURULLO, C. (2017). bibliometrix: An R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, 11(4), 959-975. <https://doi.org/10.1016/j.joi.2017.08.007>
- BERLILANA, NOPARUMPA, T., RUANGKANJANASES, A., HARIGUNA, T., & SARMINI. (2021). Organization benefit as an outcome of organizational security adoption: The role of cyber security readiness and technology readiness. *Sustainability*, 13(24), Article 13761. <https://doi.org/10.3390/su132413761>
- BICLAR, L. A. B. (2025). Enabling the cultural heritage management practices of the indigenous peoples in Western Visayas, Philippines. *GMSARN International Journal*, 19(1), 71-77. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-85195439688&partnerID=40&md5=7b6ceab6760cab3f8e4bd77a3cb659da>
- BOTERO, M. E. N. (2021). Land restitution to community councils in the Bajo Atrato Region, Colombia. *Revista Colombiana de Sociología*, 44(2), 291-313. <https://doi.org/10.15446/rcs.v44n2.78454>
- CABARCAS GRANADOS, M. M., HAMP, E., SANTANA QUINTERO, M., REINA ORTIZ, M., MONTEJO GAITÁN, F., & LEGUIZAMÓN, L. P. (2023). Digitizing and documenting heritage for conservation, a case study: Chiribiquete national park archaeological site. *International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences – ISPRS Archives*, 48(M-2-2023), 341-347. <https://doi.org/10.5194/isprs-Archives- XLVIII-M-2-2023-341-2023>
- CÁMARA-LERET, R., & BASCOMPTE, J. (2021). Language extinction triggers the loss of unique medicinal knowledge. *Proceedings of the National Academy of Sciences*, 118(24), Article e2103683118. <https://doi.org/10.1073/pnas.2103683118>
- CHAKMA, U., & CHAKMA, D. (2024). Circulation of success stories of fellow indigenous individuals: Assessing the beneficial or detrimental effects. In *Social transformation in Bangladesh: Pathways, challenges and the way forward* (pp. 122-137). <https://doi.org/10.4324/9781003434399-9>
- DARBONNE, A. J. (2023). Teach the child, resurrect the culture: Education as an agent of preservation for native American language and culture. In *Culturally responsive leadership for social justice and academic equity for all* (pp. 158-175). <https://doi.org/10.4018/978-1-6684-7482-2.ch010>
- DATTA, R. (2024). Relationality in indigenous climate change education research: A learning journey from indigenous communities in Bangladesh. *Australian Journal of Environmental Education*, 40(2), 128-142. <https://doi.org/10.1017/aee.2024.13>
- DELINA, L. L., FUERZAS, I., DHARMIASIH, W., DULAY, M. J., & SALAMANCA, A. (2024). Are capital assets under pressure? The state of and challenges to indigenous rice farming in the cultural ricescapes of Indonesia and the Philippines. *Journal of Rural Studies*, 106, Article 103235. <https://doi.org/10.1016/j.jrurstud.2024.103235>
- DENNISTON, D. (1995). High priorities: Conserving mountain ecosystems and

- cultures. In *Worldwatch paper* (Vol. 123). <https://www.scopus.com/inward/record.uri?eid=2-s2.0-0028845287&partnerID=40&md5=852e4c5130110d78d040433fc4eb4ca6>
- DEPINÉ, P., & OKA FIORI, C. (2005). Environmental analysis of Guaraguaçu Sambauqui area, Pontal do Paraná, litoral of Paraná state, Brazil. *RAE GA – O Espaço Geográfico Em Análise*, 8(9), 107-122. <https://www.scopus.com/inward/record.uri?eid=2-s2.0-29244458168&partnerID=40&md5=7cdda943e040f230d310618b7579e76e>
- DI SALVO, L. D. (2019). La experiencia en digitalización de colecciones fotográficas: del contenido iconográfico a los procesos sociales de producción, circulación y preservación de imágenes. In *Hilando perspectivas sociales: Abordajes en torno a problemas argentinos. Siglos XIX, XX y XXI* (Universida). España.
- DOMÍNGUEZ NÚÑEZ, M. C. (2022). A cybercartographic atlas of the sky: Cybercartography, interdisciplinary and collaborative work among the Pa Ipai indigenous families from Baja California, Mexico. *ISPRS International Journal of Geo-Information*, 11(3), 167. <https://doi.org/10.3390/ijgi11030167>
- DONTHU, N., KUMAR, S., MUKHERJEE, D., PANDEY, N., & LIM, W. M. (2021). How to conduct a bibliometric analysis: An overview and guidelines. *Journal of Business Research*, 133, 285-296. <https://doi.org/10.1016/j.jbusres.2021.04.070>
- ESPIRITU, B. F. (2024). Lumad indigenous values and voices in citizen and alternative media narratives. In *Indigenous media and popular culture in the Philippines: Representations, voices, and resistance* (pp. 161-179). https://doi.org/10.1007/978-981-99-9101-3_9
- GADAN, D., & ZHANG, Z. (2024). Spiritual places: Spatial recognition of Tibetan Buddhist spiritual perception. *PLoS ONE*, 19(5), Article e0301087. <https://doi.org/10.1371/journal.pone.0301087>
- GARRIGOS-SIMON, F. J., NARANGAJAVANA-KAO-SIRI, Y., & LENGUA-LENGUA, I. (2018). Tourism and sustainability: A bibliometric and visualization analysis. *Sustainability*, 10(6), 1976. <https://doi.org/10.3390/su10061976>
- GHOSE, A., & ALI, S. M. A. (2023). Protection and preservation of traditional cultural expressions & traditional knowledge in handicraft trade: Advocating the need for a global cultural policy framework. *Brazilian Journal of International Law*, 20, 472-497. <https://doi.org/10.5102/rdi.v20i2.9109>
- GHOSE, A., DHERE, A., & ALI, S. M. A. (2024). Remake of folk songs in India: Cultural appropriations, traditional expressions and copyright dilemma. *Journal of Intellectual Property Rights*, 29(4), 314-324. <https://doi.org/10.56042/jipr.v29i4.3405>
- HEALD, S. (2024). Partnership in the preservation of cultural heritage at the national museum of the American Indian. In *Textile conservation: Advances in practice* (2nd ed., pp. 165-175). <https://doi.org/10.4324/9781003358787-21>
- HEERINGA, K. M., HUNTINGTON, O., WOODS, B., CHAPIN, F. S., HUM, R. E., BRINKMAN, T. J., & WORKSHOP PARTICIPANTS. (2019). A holistic definition of healthy traditional harvest practices for rural Indigenous communities in Interior Alaska. *Journal of Agriculture, Food Systems, and Community Development*, 9, 115-129. <https://doi.org/10.5304/jafscd.2019.09B.009>
- HUARACHI, L. A., LOZANO-ZANELLY, G., ACOSTA, J., HUARACHI, C. A., & MOYA-SALAZAR, J. (2024). Inequality in the distribution of resources and health care in the poverty quintiles: Evidence from Peruvian comprehensive health insurance 2018-2019. *Electronic Journal of General Medicine*, 21(1), Article em568. <https://doi.org/10.29333/ejgm/14160>
- HUSSAIN, A., MANDIĆ, A., & FUSTÉ-FORNÉ, F. (2024). Transforming communities: Analyzing the effects of infrastructure and tourism development on social capital, livelihoods, and resilience in Gilgit-Baltistan, Pakistan. *Journal of Hospitality and Tourism Management*, 59, 276-295. <https://doi.org/10.1016/j.jhtm.2024.04.017>
- IRANI, H. R., GOLVERDI, M., RASTEGAR, R., & REZAEI, S. (2024). Rapid ecotourism development and challenges: The case of ecolodge in Iran. *Tourism Recreation Research*, 49(4), 905-910. <https://doi.org/10.1080/02508281.2022.2086417>
- KOLBOVSKY, E. Y., PETRUSHINA, M. N., PETROV, L. A., & GAGAEVA, Z. S. (2019). Cultural landscapes of the mountains of the north caucasus: Approaches to

- research, reconstruction and preservation. *Sustainable Development of Mountain Territories*, 11(3), 397-412. <https://doi.org/10.21177/1998-4502-2019-11-3-397-412>
- LEE, K.-C., & YAN, S.-Y. (2019). Participatory planning and monitoring of protected landscapes: A case study of an indigenous rice paddy cultural landscape in Taiwan. *Paddy and Water Environment*, 17(3), 539-548. <https://doi.org/10.1007/s10333-019-00750-1>
- MERIGÓ, J. M., MULET-FORTEZA, C., VALENCIA, C., & LEW, A. A. (2019). Twenty years of Tourism Geographies: A bibliometric overview. *Tourism Geographies*, 21(5), 881-910. <https://doi.org/10.1080/14616688.2019.1666913>
- MINIAKA, S., MOHANTY, S. S., MOHANTY, P., MAJHI, K., & TRIPATHY, R. (2024). Kuvi calendar: Harnessing indigenous calendar for language revitalization. In *Studies in computational intelligence* (Vol. 1148, pp. 71-83). https://doi.org/10.1007/978-981-97-1987-7_6
- MONTES, K. N., CLARK, D. J., MCANANY, P. A., & ALPUCHE, A. I. B. (2023). Cenotes and placemaking in the Maya world: Bio-cultural landscapes as archival spaces. In *Living with nature, cherishing language: Indigenous knowledges in the Americas through history* (pp. 297-320). https://doi.org/10.1007/978-3-031-38739-5_10
- NAM, N. T., & THANH, N. N. (2024). The role of local communities in the conservation of cultural heritage sites: A case study of Vietnam. *Journal of Asian Scientific Research*, 14(2), 179-196. <https://doi.org/10.55493/5003.V14I2.5057>
- NOVOZHILOV, A. G. (2022). Preserving the languages of indigenous minorities under globalization (a case study of the Russian North-West). *Rusin*, 67, 361-374. <https://doi.org/10.17223/18572685/67/20>
- PACHÓN, A. M., & MARTINEZ, S. C. (2024). Ethnotourism and Buen Vivir gendered pathways to sustainable tourism development in Colombia. In *Gender, tourism entrepreneurship and social policy* (pp. 112-126). <https://doi.org/10.4324/9781003315858-8>
- PEREZ-MORENO, O. (2024). Urban inequality and the social function of land value capture: The credibility thesis, financing tools and planning in Latin America. *Land Use Policy*, 146, Article 107285. <https://doi.org/10.1016/j.landusepol.2024.107285>
- RADEBE, N. Z. (2022). Learning from indigenous communities: The case of Esihlengeni in Vryheid, KwaZulu-Natal, South Africa. *International Journal of African Renaissance Studies – Multi-, Inter- and Transdisciplinarity*, 17(2), 51-65. <https://doi.org/10.1080/18186874.2022.2042706>
- RAI, S., PADUN, A., & ROY, S. (2024). Revitalising a fading oral culture through innovative animation production: An experiment with Bodo oral narratives. *Journal of Cultural Heritage Management and Sustainable Development*. <https://doi.org/10.1108/JCHMSD-01-2024-0002>
- RAMOS FARROÑÁN, E. V., ARBULÚ BALLESTEROS, M. A., MOGOLLÓN GARCÍA, F. S., HEREDIA LLATAS, F. D., FARFÁN CHILICAUS, G. C., GUZMÁN VALLE, M. DE LOS Á., GARCÍA JUÁREZ, H. D., SILVA LEÓN, P. M., & ARBULÚ CASTILLO, J. C. (2024). Sustainability and rural empowerment: Developing women's entrepreneurial skills through innovation. *Sustainability*, 16(23), Article 10226. <https://doi.org/10.3390/su162310226>
- REITSMA, L., WALLACE, J., & RODGERS, P. (2013). Exploring respectful design directions for indigenous communities. In *Proceedings – 2013 International Conference on Culture and Computing, Culture and Computing 2013* (pp. 131-132). <https://doi.org/10.1109/CultureComputing.2013.31>
- ROY, L. (2015). Indigenous cultural heritage preservation: A review essay with ideas for the future. *IFLA Journal*, 41(3), 192-203. <https://doi.org/10.1177/0340035215597236>
- SÁ, A. A., PALACIO-PRIETO, J. L., MELO, J. P., SILVA, E., GUIMARÃES, T., ZAVALA, B., HERRERA, P., PÉREZ, M. J. B., MERIZALDE, C., CORTEZ, J. L. S., & ROSADO-GONZÁLEZ, E. M. (2024). Significance and insights from indigenous communities in Latin America: Cultural and societal factors and challenges in UNESCO Global Geoparks. In *Geoethics for the future: Facing global challenges* (pp. 217-233). <https://doi.org/10.1016/B978-0-443-15654-0.00020-7>
- SANI, A., SAKTI, S., NEUBIG, G., TODA, T., MULYANTO, A., & NAKAMURA, S. (2012). Towards language preservation: Preliminary collection and vowel analysis of Indonesian ethnic speech data. In *Proceedings of the 2012 International Conference on Speech Database*

- and Assessments, Oriental COCOSDA 2012 (pp. 118-122). <https://doi.org/10.1109/ICSDA.2012.6422469>
- SANTANO, D., ZAINUDDIN, M., & MARIE JAMES, M. A. (2024). Exploring cultural preservation and innovation: Augmented reality packaging prototyping for the Mah Meri Tribe in Malaysia. In *Proceedings of the 2024 Pacific Neighborhood Consortium Annual Conference and Joint Meetings: Green, Flow, and Signal: Reconnecting Fragmented Communities in the Age of Digital Transformation, PNC 2024* (pp. 33-38). <https://doi.org/10.23919/PNC63053.2024.10697377>
- SCHUMANN, R. L., POTTER, A. E., & COOK, M. R. (2021). "The south got something to say": Resilient remembering amid uncertain futures. *Southeastern Geographer*, 61(4), 303-321. <https://doi.org/10.1353/sgo.2021.0026>
- SHOLEH, H. I. N., & MUTTAQIN, A. Z. (2024). Local wisdom in Sebanggan traditional marriage practices: A maqāṣid sharī'ah perspective. *Ijtihad: Jurnal Wacana Hukum Islam Dan Kemanusiaan*, 24(1), 119-137. <https://doi.org/10.18326/ijtihad.v24i1.119-137>
- SILVA, E. G., REARDON, H. M., SOARES, A. M. V. M., & AZEITEIRO, U. M. (2021). Identity and environment: Historical trajectories of 'traditional' communities in the protection of the Brazilian Amazon. In *World sustainability series* (pp. 233-248). https://doi.org/10.1007/978-3-030-76624-5_15
- THARAKAN, J. (2015). Integrating indigenous knowledge into appropriate technology development and implementation. *African Journal of Science, Technology, Innovation and Development*, 7(5), 364-370. <https://doi.org/10.1080/20421338.2015.1085176>
- TIWARI, S. (2024). Implications of India's act east policy on the food systems and cultural heritage of the Konyak Nagas: A case study of sustainable subsistence and capitalistic rationalisation. *India Quarterly: A Journal of International Affairs*, 80(2), 219-235. <https://doi.org/10.1177/09749284241241595>
- VALLE-DÍAZ, F. R., VEGA-LOAYZA, F., & CRUZ-GARCÍA, A. (2023). Desintegración de operadores turísticos en la ruta ecoturística "Hatun ñan orqupi Pampachiri", Perú. *Revista Amazónica de Ciencias Económicas*, 2(2), Article e463. <https://doi.org/10.51252/race.v2i2.463>
- VAN ECK, N. J., & WALTMAN, L. (2010). Software survey: VOSviewer, a computer program for bibliometric mapping. *Scientometrics*, 84(2), 523-538. <https://doi.org/10.1007/s11192-009-0146-3>
- WAISSEROVA, H. (2022). What is (not) buried with Anton Pučelík? Revisiting Willa Cather's prophecy of the tenacity of Czech American culture in the Bohemian Alps, Nebraska. *Great Plains Quarterly*, 42(1-2), 91-126. <https://doi.org/10.1353/gpq.2022.0004>
- WHITEHAIR, L., LITSON, B., NEZTSOSIE, B., SKALTSAS, D., MARTIN, J., BEGAY, J., O'NEILL, L., & FULÉ, P. Z. (2024). Ecological partnership: Restoring Pinyon woodlands on the Navajo Nation, USA. *Trees, Forests and People*, 17, Article 100605. <https://doi.org/10.1016/j.tfp.2024.100605>
- ZUÑIGA, P. (2020). Kai: Restoration of the native forest for the conservation of the craft tradition of the Pilwa of Lake Budi. *IOP Conference Series: Earth and Environmental Science*, 503(1), Article 012056. <https://doi.org/10.1088/1755-1315/503/1/012056>

