

A CiteSpace-Based Review of Research on Traditional Settlements in Inner Mongolia

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Abstract:

This study aims to investigate the current state of research on traditional settlements in Inner Mongolia and to grasp their developmental trends. Using the Citespace software, we selected 325 articles published between 2006 and June 2025 from three major Chinese databases — CNKI (China National Knowledge Infrastructure), Wanfang Data, and VIP Information — as our sample. We analyzed annual publication volume, core authors, funding sources, and publishing institutions, and generated keyword co-occurrence maps, Keyword Clustering Analysis Map, and Keyword Burst Map, leading to corresponding analytical conclusions. It is hoped that future researchers can take this work as a foundation for further exploration of key issues, thereby promoting interdisciplinary integration and collaborative development between traditional settlement architecture in Inner Mongolia and other disciplines.

Keywords:

Literature Review, Database, Traditional Settlements in Inner Mongolia, CiteSpace, Visual Analytics

1. Introduction

Traditional settlements in Inner Mongolia embody unique historical information, including the convergence of nomadic and agricultural lifestyles, the integration of Mongolian and Han cultures, and the evolution of frontier governance. They serve as living specimens for interpreting the history of human habitation and ethnic interactions in the northern frontier. To strengthen the protection of these traditional settlements, in December 2012, the Ministry of Housing and Urban-Rural Development, the Ministry of Culture, and the Ministry of Finance jointly issued a document to establish the China Traditional Village Directory and simultaneously released its selection criteria. By June 2025, a total of 36 traditional villages, ancient villages, and historical and cultural villages in Inner Mongolia had been included in this directory. This paper reviews literature on traditional settlements in Inner Mongolia from the past two decades and employs CiteSpace to analyze knowledge maps, including publication volume, core authors, and publishing institutions related to these settlements. This approach offers a new method for the quantitative study of traditional settlements in Inner Mongolia.

2. Data Sources and Research Methods

This study employed CiteSpace software (version 6.2.6) to search the CNKI, Wanfang Data, and VIP Information Database. The search was conducted using the subject terms “traditional settlement,” “traditional village,” “ancient village,” and “historical and cultural village.” The geographical scope was simultaneously limited by combining these with the regional subject terms “Northern border area,” “Inner Mongolia,” “Xiliao River Basin,” “Hetao Plain,” “Yinshan Mountains,” “Ordos,” “Baotou,” “Hohhot,” and “Hulunbuir.” The literature search covered publications from 2006 to June 2025. The initial database search yielded 411 relevant publications, comprising 154 from CNKI, 219 from Wanfang Data, and 41 from the VIP Information Database. After importing the results into NoteExpress for deduplication and screening, a final set of 325 publications was included for analysis. The retrieved literature was exported in TXT format and subsequently processed using the CiteSpace visualization software.

3. Basic Characteristics of Documents

3.1. Annual Publication Volume Analysis

The annual quantity of scholarly publications can reflect the cumulative volume of a scientific knowledge domain, and conducting yearly statistical analysis of these outputs can further reveal the field’s current research status and development trends [1]. Based on the annual distribution of publications, where the year of publication is on the horizontal axis and the number of publications is on the vertical axis, created using Microsoft Excel, research output on traditional settlements in Inner Mongolia can be divided into three distinct phases (Figure 1) Initial Exploration Stage (2006-2009): this phase was characterized by a low volume of publications and limited research intensity. The primary reason was the absence of a national-level initiative, such as a Traditional Villages Catalogue, leading research to rely predominantly on the individual interests of scholars specializing in architecture, geography, and ethnology from various universities. Consequently, studies progressed sporadically without centralized impetus. Preliminary Growth Stage (2009-2018): a noticeable increase in publication output marked this stage. This growth was significantly driven by policy developments: 28 villages from Inner Mongolia were included in the China Traditional Village Catalogue, and the autonomous region launched a specific scientific and technological project focused on “Traditional Village Protection Research.” The synergistic effect of these policy incentives catalyzed a rapid warming of research interest and activity in the field. Rapid Development Stage (2018-June 2025): this stage witnessed a substantial surge in publications, peaking during 2023-2024 with a maximum annual output of 69 papers. The upswing was fueled by the national “Traditional Villages Concentrated and Contiguous Protection and Utilization Demonstration Project.” Furthermore, the convening of the “Northern Frontier Traditional Settlement Protection Conference” in October 2024, jointly organized by the Chinese National Architecture Research Society and the Department of Housing and Urban-Rural Development of the Inner Mongolia Autonomous Region, provided a significant academic platform. The combined effect of these policy and academic drivers pushed research heat to its zenith.

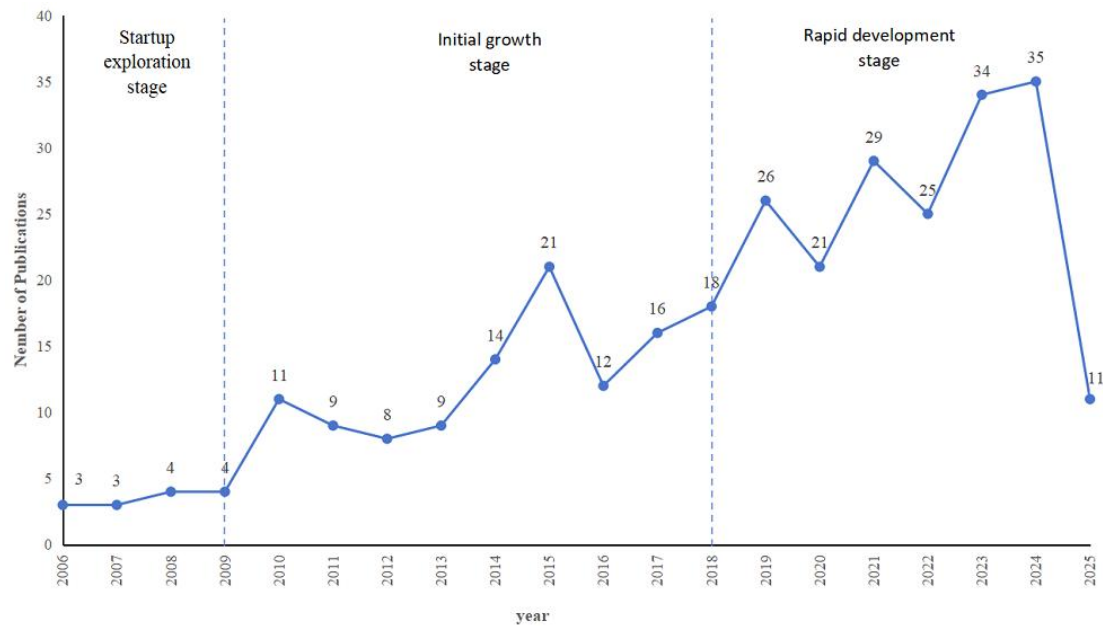


Figure 1. Annual Trend of Publications.

From the perspective of literature classification, the composition includes 13 conference papers, 130 journal articles, 2 doctoral dissertations, and 180 master's theses. The predominance of degree theses indicates that research on Inner Mongolia's traditional settlements is primarily conducted within graduate education, reflecting the topic's established relevance and accumulating research foundation in the cultivation of postgraduates in disciplines such as architecture, urban and rural planning, and human geography.

Among the journal articles, 32 were published in core journals, accounting for 24.6% of the total journal publications. This proportion suggests that the field is still in a nascent-to-growth stage, where the depth of academic inquiry and the establishment of a dominant presence in high-tier academic discourse require further development. Regarding disciplinary distribution, research in architectural science, technology, and engineering is particularly prominent, with 223 publications. This not only underscores architecture as the primary disciplinary base for this topic but also indicates that current studies predominantly focus on aspects such as physical spatial morphology, architectural construction techniques, settlement layout, construction craftsmanship, and preservation strategies. The research concentration lies predominantly in the tangible space, historical value, and engineering practices related to settlement architecture.

3.2. Core Author Analysis

Based on the analysis of author publication counts conducted in NoteExpress, the top eight scholars ranked by output volume in descending order are Ma Ming, Han Ying, Zhai Yu, Bai Rui, Yin Junfeng, Li Yueyan, Zhao Yun, and Rong Lihua (Table 1). According to the (Price's formula, the minimum threshold for defining core authors is calculated as follows [2]:

$$M = 0.749 \times (N_{\text{Max}})^{1/2}$$

where N_{max} represents the publication count of the most prolific author. Only authors with a publication count equal to or greater than M are considered core authors,

also known as high-output authors. based on this calculation, the threshold for inclusion as a core author is 2.37 publications. By applying the rounding-up principle, the number of core authors in the database is determined to be 20. Collectively, these core authors account for 16.6% of the total publication output in the database. According to the classic formulation of Price's Law, the core author group typically contributes approximately half of the total publications in a given research domain. The current proportion of output attributed to core authors in this field is insufficient to meet this criterion, indicating that the concentration of core authors remains relatively low and a highly cohesive core research team has not yet been established.

Table 1. *Frequency Table of Publishing Authors.*

Number	Author	Year of First Publication	Publication Frequency
1	Ming Ma	2013	10
2	Ying Han	2014	6
3	Yu Zhai	2016	5
4	Rui Bai	2012	5
5	Junfeng Yin	2012	5
6	Yuanyan Li	2023	4
7	Yun Zhao	2013	4
8	Lihua Rong	2012	4

3.3. Analysis of Funding Sources in the Literature

From the perspective of funding sources for the literature, national, provincial, and university-level research grants serve as the core driving forces behind the study of traditional villages. National-level funding mechanisms, such as the National Natural Science Foundation of China (NSFC), the National Key Research and Development Program, the Western Project of the National Social Science Fund, and the National Science and Technology Support Program, continue to play a pivotal role. Specifically, 7 papers were funded by the NSFC, 1 by the National Key Research and Development Program, 7 by the National Science and Technology Support Program, and 2 by the Western Project of the National Social Science Fund.

At the provincial level, the Natural Science Foundation of Inner Mongolia Autonomous Region leads in related research areas, with 32 papers published under its support. Additionally, 9 papers were funded by the Science and Technology Plan Project of Inner Mongolia Autonomous Region. At the university level, funding initiatives such as the Fundamental Research Funds for the Provincial Universities of Inner Mongolia Autonomous Region have garnered significant attention, resulting in 9 published papers. A positive correlation exists between the number of research grants and both the volume of literature on traditional villages and their academic influence. The coordinated multi-level funding mechanism not only covers typical traditional settlements in Inner Mongolia but also enhances research activity and facilitates the translation of research findings into practical applications.

3.4. Analysis of Publishing Institutions

Based on the bibliometric analysis of domestic literature, research on traditional settlements in Inner Mongolia exhibits a characteristic pattern of "small-scale concentration within a broader dispersion." The majority of research output is concentrated within universities, with Architectural Science and Engineering disciplines playing a dominant role. Institutions such as Inner Mongolia University of

Science and Technology, Inner Mongolia Polytechnic University, Inner Mongolia Normal University, and Inner Mongolia University, along with their subordinate departments, have emerged as core forces in this research field, highlighting significant geographical advantages in studying local settlements. As illustrated in the bar chart (Figure 2), statistical data reveals that 6 institutions have each published more than 10 relevant papers. Collectively, these leading institutions have contributed 159 publications.

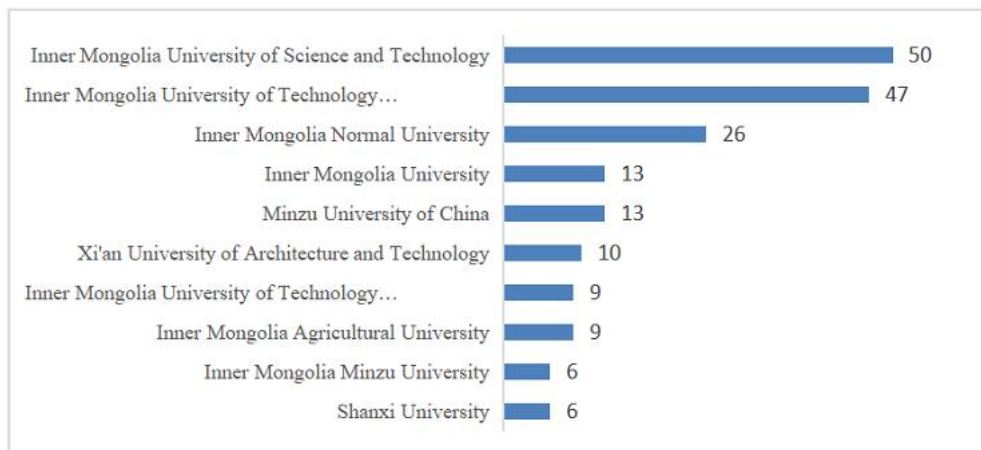


Figure 2. Annual Trend of Publications

From a national perspective, the academic literature output on traditional settlements in Inner Mongolia is notably lower compared to other regions during the same period. This research gap stems from multiple factors. Firstly, the vast territory of Inner Mongolia spans approximately 2,400 kilometers from east to west. Such an extensive geographical scale results in significant heterogeneity in natural environments, climatic conditions, and settlement types across the region, complicating spatial coverage and comparative analysis in research. Secondly, traditional settlements in Inner Mongolia are typically characterized by a dispersed distribution pattern, with large distances between villages and relatively underdeveloped transportation infrastructure. This spatial layout makes it difficult for researchers to adopt methods such as “cluster sampling” or “contiguous area surveys” to obtain representative samples. Consequently, achieving comprehensive regional coverage or selecting typical settlements requires substantially more time and resources. Furthermore, environmental and resource constraints further intensify fieldwork challenges. On one hand, Inner Mongolia is sparsely populated, with even lower population densities in traditional settlements. Some villages are inhabited only by elderly residents or are occupied seasonally, limiting the availability of informants for in-depth interviews. On the other hand, the region experiences complex and variable climatic conditions, including long and harsh winters, short summers with significant diurnal temperature fluctuations, and frequent sandstorms in spring. These conditions shorten the viable window for fieldwork and impose higher demands on equipment adaptability, researcher endurance, and logistical planning. Additionally, accelerated urbanization, outward migration, and insufficient awareness of preservation have led to the degradation, functional abandonment, or loss of cultural memory in many traditional settlements across Inner Mongolia. As a result, the number of “living settlements” suitable for on-site surveying, interviews, and data collection remains limited.

These objective constraints have impeded the development of research in this field, contributing to a relative lag in academic output, research depth, and scholarly influence compared to other regions. However, with increasing policy support and continuous advancements in technology, this area of study is gradually entering a new phase of vigorous development.

4. Research Hotspot Analysis

4.1. Analysis of Keyword Co-occurrence Maps

In a keyword co-occurrence map, the size of a node represents the frequency of keyword occurrence, while the thickness of the connecting lines between nodes indicates the strength of association between keywords [3]. Centrality analysis, on the other hand, can reveal abrupt shifts or transitional relationships among research hotspots, with its value ranging from 0 to 1. A higher centrality value indicates that the node lies on critical paths between different research clusters, signifying its role as a cross-disciplinary “hub” with connective and transitional significance. When the centrality value is ≥ 0.1 , it is generally considered that the node possesses high mediation capability [4].

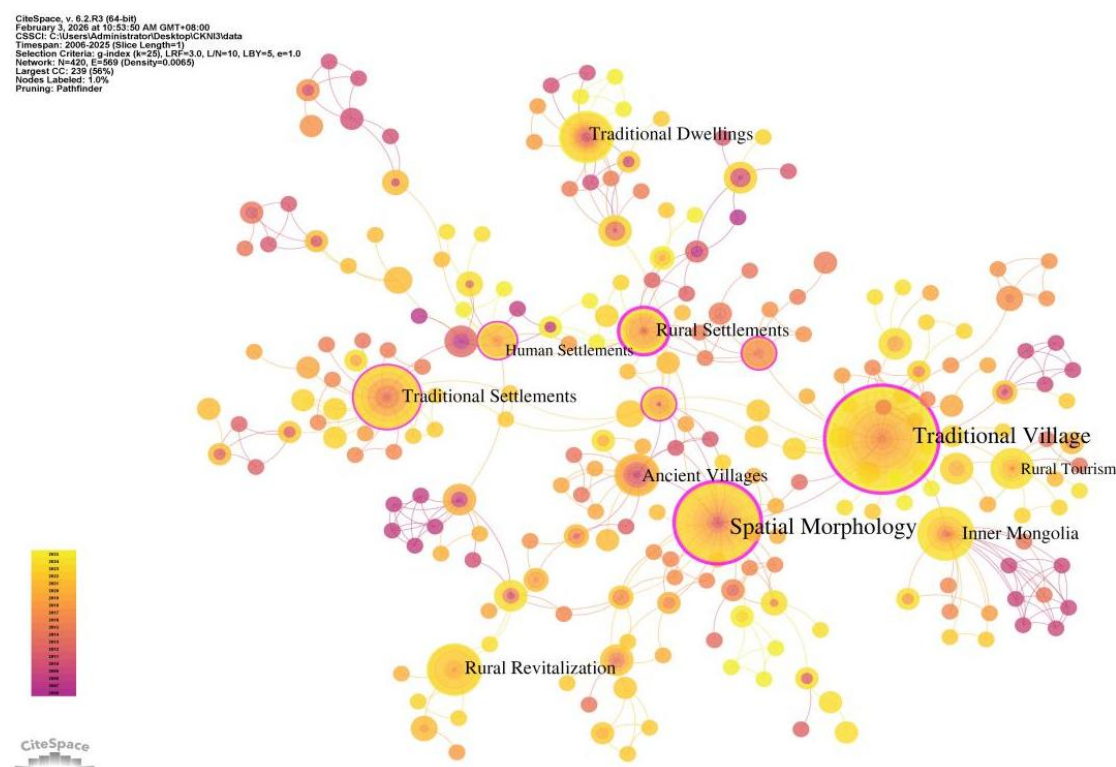


Figure 3. High-frequency Keyword Co-occurrence Map.

Analysis of Keyword Nodes and Links in Inner Mongolia Traditional Settlement Research, the keyword co-occurrence network analysis reveals a total of 420 nodes (N=420) and 634 links (E=634) among them, representing 421 distinct keywords identified in this study (Figure 3). As shown in Table 2, the top three keywords in terms of frequency are “Traditional Village,” “Spatial Form,” and “Traditional Settlement,” while those with the highest centrality are “Traditional Village,” “Spatial Form,” and “Rural Settlement.” This highlights that “Traditional Village” and “Spatial Form” constitute the core elements in this research domain, reflecting both their significant scholarly attention and their critical research value.

Table 2. Top 7 high-frequency keywords by centrality.

Number	Frequency	Centrality	Earliest Year	Keyword
1	51	0.33	2013	Traditional Village
2	25	0.26	2011	Spatial Pattern
3	9	0.23	2012	Rural Settlement
4	7	0.17	2013	Human Settlement
5	5	0.13	2011	Public Space
6	19	0.12	2012	Traditional Settlement
7	5	0.1	2015	Cultural Preservation

4.2. Analysis of Keyword Clusters

In general, a clustering result is considered valid and reliable when the Modularity Q value exceeds 0.3 and the Mean Silhouette S value exceeds 0.7 [5]. The clustering analysis in this study yielded 8 distinct clusters with excellent metrics ($Q=0.9044$, $S=0.9797$), confirming high validity and reliability (Figure 4). These clusters are labeled as follows, with a smaller cluster number indicating a larger size: #0 Rural Settlement, #1 Spatial Form, #2 Traditional Village, #3 Traditional Settlement, #4 Ancient Village, #5 Ethnic Minorities, #6 Inner Mongolia, #7 Traditional Dwellings, and #8 Rural Tourism. The timeline view generated from the clustered network illustrates the structural evolution of co-citation nodes over time [6]. Analysis of Figure 5 shows that within the dataset, cluster #0 Rural Settlement has the longest research timespan, covering 9 years. Furthermore, clusters #0 Rural Settlement, #2 Traditional Village, and #7 Traditional Dwellings have developed new research directions in recent years.

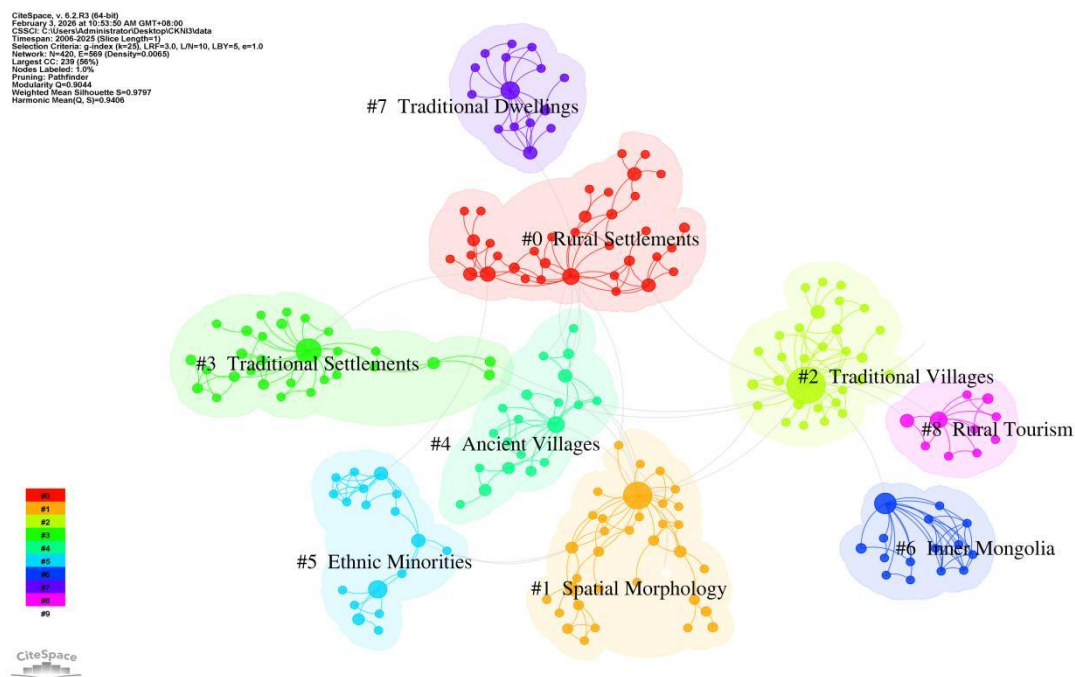


Figure 4. Keyword Clustering Analysis Map.

Keywords appearing in nodes from 2020 onwards, such as "Spatial Gene", "Visualization", "Interactive Design", and "Benefit Distribution", represent emerging research hotspots. These reflect two key trends in rural settlement studies: methodological innovation emphasizing visualization and interactive technologies,

and a practical focus on breakthroughs in benefit distribution mechanisms and rural construction practices.

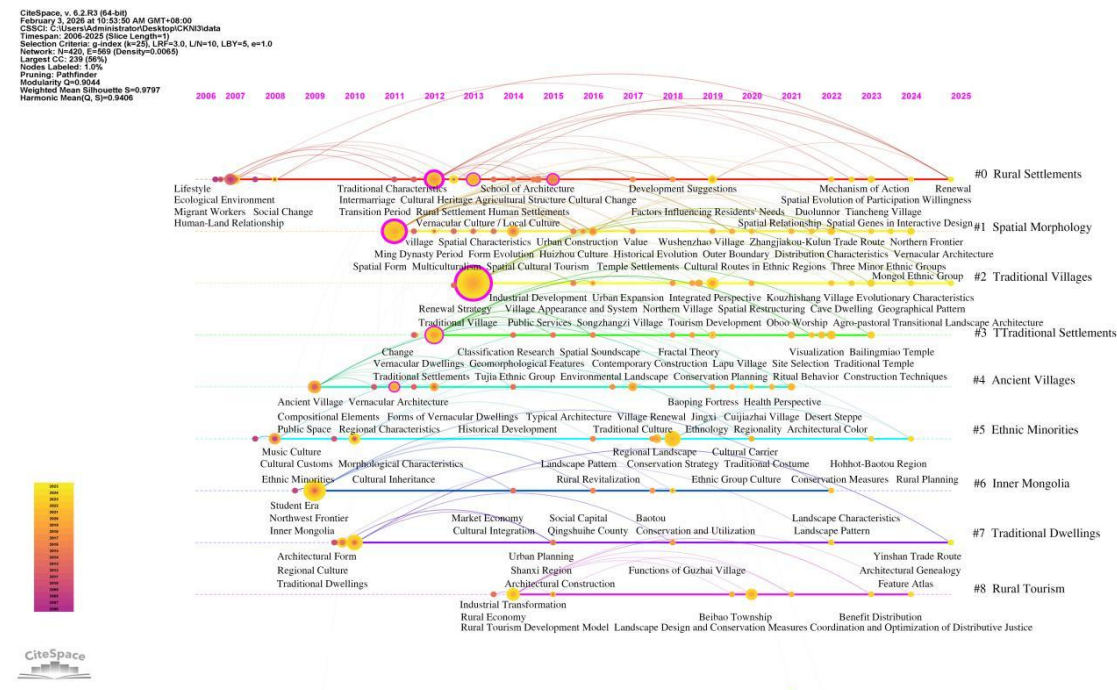


Figure 5. Keyword Clustering Timeline Map.

The Silhouette value (S) serves to assess the “thematic purity” of a cluster, while the number of nodes (Size) indicates its “academic scale” and “research resource allocation.” By jointly considering both the Silhouette value and the node count, one can identify whether a theme is characterized as “broad but scattered” or “small yet focused.” The top three clusters, namely #0, #1, and #2, each have a node count exceeding 30 and a Silhouette value greater than 0.95. This indicates that, over the past two decades, three high-purity research threads have been well established: ecology-society coupling, morphological evolution, and tourism-led revitalization.

4.3. Analysis of Keyword Burst Detection

Burst keywords refer to terms that appear frequently in publications within a short period, representing research hotspots and emerging trends in the field during that time span. In the chart, the blue line indicates the overall period when a keyword appears, while the red line highlights the phase of its most intense activity (burst).

As shown in Figure 6, the analysis of keyword bursts in Inner Mongolia’s traditional settlement research can be categorized into three distinct phases: Early Phase (2006–2016): Characterized by core keywords such as “Social Change,” “Local Culture,” and “Archaeology.” This stage primarily focused on historical heritage protection and the analysis of geographical patterns, reflecting a scholarly emphasis on historical retrospection. Middle Phase (2016–2021): The burst keywords shifted to “Cultural Protection,” “Rural Settlement,” and “Human Settlements.” This transition indicates that the research focus turned toward the synergy between environmental sustainability and the living heritage transmission of settlements. Recent Phase (2021–2025): Marked by burst keywords like “Rural Revitalization,” “Rural Tourism,” and “Landscape Design.” This evolution demonstrates that the current

research direction involves forward-looking exploration into the application of strategies for rural industrial revitalization and cultural revitalization.

Top 19 Keywords with the Strongest Citation Bursts

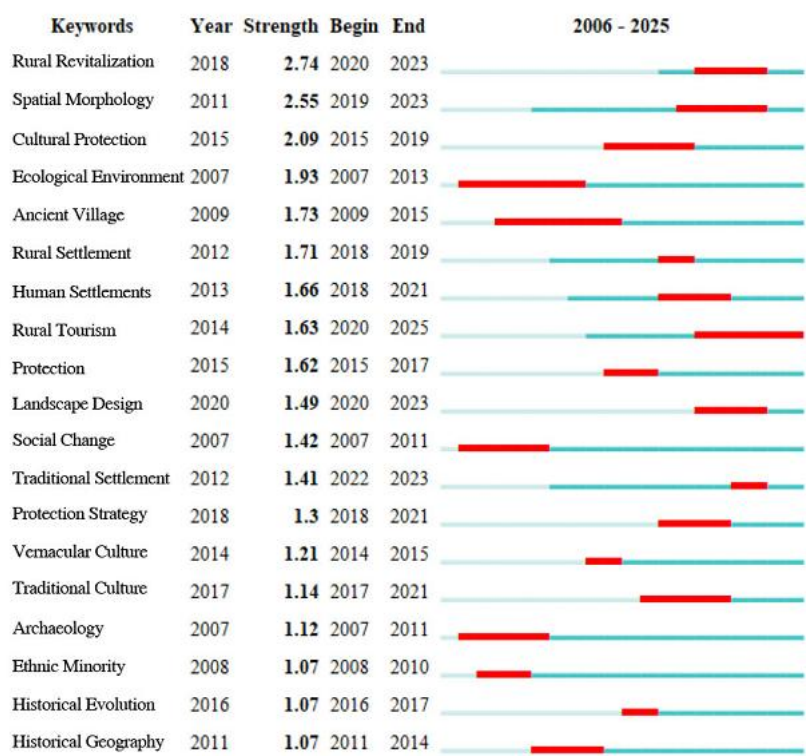


Figure 6. Keyword Burst Map.

Through an analysis of key information from keyword clustering and burst detection maps, the following three main research aspects can be summarized:

4.3.1. Rural Settlements in Inner Mongolia

Research on rural settlements in Inner Mongolia focuses on human-land relationships, the evolution of settlement patterns, and the coordinated development of ecological, production, and living spaces. Regarding human-land relationships and spatial classification, Junfeng Yin et al., based on human-land system theory, identified 14 typical settlement types by examining three core elements: ecological carrying capacity, production landscape patterns, and socio-cultural connections [7]. In terms of settlement pattern evolution, Lixia Guo et al. analyzed the transition of grassland rural settlements in Inner Mongolia from the dispersed “Gulieyan” pattern during the free nomadic period to the “large dispersion, small concentration” pattern in the semi-settled and settled stages [8]. From the perspective of coordinated development of ecological, production, and living spaces, Yafeng Zou et al., using the DPSIR model and kernel density analysis, found that changes in the scale, morphology, and spatial layout of rural settlements between 2010 and 2020 were non-linearly influenced by factors such as proximity to cultivated land, ecological slope and elevation, and accessibility of public facilities. This reveals the intrinsic connection between settlement evolution and rural structural adjustments in fragile ecological zones [9]. Collectively, these studies form an academic chain for rural settlements in Inner Mongolia, encompassing type identification, pattern analysis, and

mechanism exploration. This not only addresses regional specificity but also provides empirical support for sustainable rural development in less-developed areas.

4.3.2. Spatial Forms in Inner Mongolia

Research on spatial forms in Inner Mongolia focuses on the interplay of natural geography, human history, and socio-economic needs, producing multidimensional academic outcomes centered on settlements in agro-pastoral transition zones, urban spatial evolution, and the “ecological, production, and living” spaces of territorial planning. From the perspective of settlements in agro-pastoral transition zones, Chenxi Fan et al. studied traditional villages in these zones, focusing on their boundary spatial forms. Through field surveys supplemented by literature, they revealed that these forms are shaped by both geographical environments and historical-cultural factors, exhibiting diverse types. Consequently, they proposed pathways and recommendations for strengthening protection, inheritance, and rational renewal [10]. In terms of urban spatial evolution, Geer Hong et al., based on multi-source data from 1949 to 2018, found that the urban land area of Hohhot increased by 67.62 times, with its morphology transitioning through stages of “infilling—concentric expansion—single-axis extension—dual-axis extension.” They identified policy and economic factors as the primary drivers [11]. From the perspective of “ecological, production, and living” spaces in territorial planning, Hui Dang et al., using land use data from 2000 to 2020, noted a decrease in ecological and agricultural-pastoral production spaces, alongside an increase in living and other production spaces. They quantified the interactive effects of natural factors like slope with policy-driven industrial development and human activities [12]. Research on spatial forms in Inner Mongolia has evolved from early case studies of individual settlements to broader perspectives encompassing urban evolution and territorial spatial systems. A core consensus is that spatial patterns fundamentally result from the coupling of “natural foundations, human history, and modern needs.”

4.3.3. Traditional Villages in Inner Mongolia

Research on traditional villages in Inner Mongolia primarily focuses on three aspects: regional culture, protection strategies, and renewal pathways, forming an interdisciplinary academic approach. Regarding regional culture, Yan Lu et al. proposed that traditional villages along the Yellow River should coordinate three symbiotic units—culture, industry, and space—improve symbiotic interfaces, and establish regional linkage patterns to achieve “cultural-industry prosperity” and rural revitalization [13]. In terms of protection strategies, Hui Yu et al. emphasized the need to balance protection and development in rural tourism. This involves improving regulations and policies, strengthening community participation, and enhancing professional assessments to avoid overdevelopment and achieve sustainable renewal [14]. For renewal pathways, Yang developed an evaluation system with 8 categories and 30 indicators using the G1-entropy weight method. Through quadrant and radar chart analyses, optimization strategies were proposed in three areas: functional formats, spatial features, and building functions. These strategies emphasize the mutual promotion of tourism and living environments and the driving effect of key indicators [15]. Traditional villages in Inner Mongolia are rooted in regional culture, deeply exploring distinctive resources such as ethnic architecture. By promoting cultural-tourism integration and industrial synergy, they aim to achieve cultural-

industry prosperity and rural revitalization, following a sustainable and high-quality development path.

Researchers focusing on traditional settlements in Inner Mongolia are advised to integrate analyses of keyword burst maps, cluster timeline maps, and co-occurrence maps. This combined approach facilitates the identification of genuinely significant research clues. For instance, the keyword “rural settlements,” while seemingly less prominent based on surface data, actually plays a potential bridging role. It possesses significant cross-disciplinary research potential, connecting fields such as architecture, geography, sociology, ethnology, and history. By integrating diverse research perspectives, it holds rich research value worthy of deeper exploration. In contrast, “traditional settlements” function more as a high-frequency term within clusters, attracting considerable attention in the current research landscape. However, given its existing research trends and developmental characteristics, it is less likely to become a key factor driving new intellectual shifts or breakthroughs in the short term.

5. Research Conclusions

In terms of publication volume, research on traditional settlements in Inner Mongolia has progressed through three stages from 2006 to 2025: initial exploration, preliminary growth, and rapid development. Master’s theses constitute a relatively high proportion of the literature, with architecture, science, and engineering dominating the disciplinary focus. Among journal articles, those published in general journals are more prevalent.

Regarding core authors, Ma Ming and Han Ying are identified as leading contributors to research on traditional settlements in Inner Mongolia. In terms of funding support, national-level grants serve as the primary pillar, provincial natural science funds play a guiding role, and university-level funds provide foundational support. The number of funded projects and research outputs have grown in tandem.

Institutional contributions are largely concentrated in universities, with Inner Mongolia University of Science and Technology ranking among the top institutions in terms of publication volume.

The current funding landscape for research on traditional villages in Inner Mongolia is primarily supported by national, provincial, and university-level grants. These three funding sources not only dominate in quantity but also play a critical role in initiating, sustaining, and deepening research projects. They directly influence the dynamism and developmental trajectory of the field, serving as key drivers of academic output and the formation of research hotspots.

Keyword analysis reveals that “traditional village,” “spatial form,” and “traditional settlement” are high-frequency terms in this research domain over the past two decades. Clustering and timeline maps indicate that “rural settlements” constitute the largest cluster, encompassing the most nodes and spanning the longest timeframe. Burst detection analysis shows that keyword bursts can be divided into three phases. Among these, quantitative studies on spatial forms and applied topics such as rural revitalization continue to represent parallel main themes in current traditional settlement research.

6. Conclusions

Moving forward, the research paradigm for traditional settlements in Inner Mongolia will undergo a significant shift, evolving from an early focus on “solving singular technical problems” to a comprehensive research model emphasizing “synergistic innovation within complex systems.” To further deepen and expand the field, efforts should focus on the following three dimensions:

First, at the theoretical level, there is an urgent need to develop a synergistic theoretical framework integrating multidimensional elements of “people, land, industry, culture, and institutions.” Clear methodological boundaries for interdisciplinary research should be defined, and mutual translation of disciplinary languages and complementary methods should be promoted to advance the theoretical system from “empirical induction” to “systematic integration.” This will help establish a theoretical paradigm for traditional settlement research that reflects the regional characteristics of Inner Mongolia while maintaining broader applicability, thereby systematizing and enriching the theoretical framework.

Second, at the practical level, research should closely align with major national strategic directions such as rural revitalization and ecological restoration. Pathways and mechanisms for the deep integration of architecture, geography, ecology, sociology, and other disciplines in specific projects should be actively explored.

Third, at the technical level, advanced digital and information tools should be widely adopted and applied. Examples include 3D laser scanning (LiDAR), 3D modeling software such as RealityCapture, and drone oblique photogrammetry. These technologies can enhance the precision of data collection and the efficiency of modeling while reducing errors caused by manual operations, thereby providing more reliable and comprehensive data support for projects.

Conflicts of Interest

The author declares that there is no conflict of interest regarding the publication of this article.

Author Contributions

Hanxuan Dong: Conceptualization; Methodology; Software; Validation; Formal analysis; Investigation; Resources; Data Curation; Writing – original draft preparation; Writing – review and editing, Visualization. Min Zhang: Writing – review and editing; Supervision; Funding acquisition.

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References

- [1] Wang, Z.Z.; Zhuang, J.Y.; Li, D.Y. et al. Research Status and Visual Analysis of Domestic and International Elder Abuse Based on Bibliometrics. *Gen. Nurs.* 2022, 20(34), 4759-4766. DOI: 10.12104/ji.ssn.1674-4748.2022.34.002.
- [2] Shi, S.X.; Li, H.L.; Yang, H. Analysis of authors of papers published in Information Science from 2005 to 2010. *Inf. Sci.* 2012, 30(2), 277-281. DOI: <https://doi.org/10.13833/j.cnki.is.2012.02.030>.
- [3] Chen, Y.; Chen, C.M.; Liu, Z.Y.; et al. The methodological function of CiteSpace knowledge mapping. *Stud. Sci. Sci.* 2015, 33(2), 242-253. DOI: 10.3969/j.issn.10032053.2015.02.009.
- [4] Zou, Y.; Zhang, H.L.; Chen, O.Y.; et al. Visualization Analysis of Research Hotspots on Patient-Reported Outcomes in China. *Nurses Train.* 2024, 39(5), 552-557. DOI: 10.16821/j.cnki.hsxx.2024.05.020.
- [5] Dong, T.X. Analysis and prospect of research hotspots in urban community governance based on Citespace. *Oper. Res. Fuzziness*, 2022, 12(4), 1559-1569. DOI: 10.16821/j.cnki.hsxx.2024.05.020.
- [6] Wang, L.; Qiu, L.; Zeng, Z.Y. Knowledge mapping analysis of rural housing research in China based on CiteSpace. *Urban Rural Plan.* 2023, 11, 74-76. DOI: 10.19875/j.cnki.jzywh.2023.11.024.
- [7] Yin, J.F.; Chai, Z.G.; Bai, R.; et al. Regionalization of rural settlement genealogy in Inner Mongolia based on man-land system theory. *World Archit.* 2023, 9, 23-27. DOI: 10.16414/j.wa.2023.09.006.
- [8] Guo, L.X.; Rong, L.H. Research on the evolution of settlement patterns in grassland rural settlements from a policy perspective: A case study of East Ujimqin Banner, Xilin Gol League. *Small Town Constr.* 2021, 39(7), 104-111. DOI: 10.3969/j.issn.1009-1483.2021.07.014.
- [9] Zou, Y.; Rao, Y.; Luo, F.; Zhang, J.; Li, Y.; Yang, Z. Evolution of rural settlements and its influencing mechanism in the farming-pastoral ecotone of

- Inner Mongolia from a production-living-ecology perspective. *Habitat Int.* 2024, 151, 103137. DOI: 10.1016/J.HABITATINT.2024.103137.
- [10] Fan, C.X.; Ma, M. Research on the spatial form of boundary space in traditional villages in the farming-pastoral ecotone of Inner Mongolia. *Sichuan Build. Mater.* 2020, 46(12), 43-44. DOI: 10.3969/j.issn.1672-4011.
- [11] Hong, G.; Chi, W.F.; Dou, Y.Y.; et al. Analysis of morphological characteristics and influencing factors of Hohhot city evolution in Inner Mongolia over the past 70 years. *Remote Sens. Technol. Appl.* 2022, 37(5), 1237-1247. DOI: 10.11873/j.issn.1004-0323.2022.5.1237.
- [12] Dang, H.; Rong, L.H.; Li, Y.T.; et al. Spatiotemporal evolution characteristics and influencing factors of production-living-ecological spaces in the farming-pastoral ecotone: A case study of Hohhot City, Inner Mongolia. *Arid Zone Res.* 2023, 40(10), 1698-1706. DOI: 10.13866/j.azr.2023.10.16.
- [13] Yan, L.; Rong, L.H.; Zhang, M.Y. Research on the development strategy of cultural and industrial co-prosperity in traditional villages along the Yellow River based on symbiosis theory: A case study of the Laoniawan area. *Small Town Constr.* 2025, 43(5), 109-118. DOI: 10.3969/j.issn.1009-1483.2025.05.015.
- [14] Wei, S.L.; Bai, L.Y.; Yue, C.W. Research on the protection and development strategy of spatial form in Laoniawan village based on space syntax. *Contemp. Archit.* 2023, 9, 66-69.
- [15] Yu, H.; Ji, S.; Li, Y. Protection and development of traditional villages from the perspective of rural tourism: A case study of Laoniawan Village in Qingshuihe County, Inner Mongolia. *Urbanism Archit.* 2021, 18(10), 24-28, 92. DOI: 10.19892/j.cnki.csjz.2021.10.05.



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