

A Review and Reflection on the Spirit of *Populus euphratica* (Hu Yang) 2000-2020: An Analysis Using Cite Space Software

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Abstract

The spirit of *Populus euphratica* embodies the spirit of hard struggle, self-improvement, and dedication rooted in the border regions. This paper focuses on the spirit of *Populus euphratica*, collecting research literature as the subject of study and using Cite Space software as an analytical tool to organize, summarize, and analyze relevant literature from academic journals published between 2000 and 2020. It aims to gain a comprehensive understanding of the achievements and shortcomings in the study of the spirit of *Populus euphratica*. Currently, related research primarily explores issues such as the formation process, connotation, core content, theme value, and contemporary value. These studies typically use three narrative frameworks: connotation formation, significance interpretation, and experiential enlightenment. Commonly used frameworks include educational research, value research, ideological and political research, and communication research. However, there are issues such as theoretical misalignment and lack of interdisciplinary cooperation. To address these issues, it is necessary to strengthen collaboration among different disciplines and the connection between academia and industry. The latest theoretical resources should be reasonably utilized.

Keywords: review, reflection, spirit of *Populus euphratica*, development trends, Cite Space

1. Introduction

At the Third Central Xinjiang Work Conference, General Secretary Xi Jinping emphasized the importance of upholding the national and contemporary spirit, practicing the spirit of the poplar tree and the spirit of the Xinjiang Production and Construction Corps (XPC), and inspiring officials at all levels to take root and dedicate themselves to the border regions in the new era. The spirit of the poplar tree and the core socialist values are closely linked, reflecting the cohesion formed through long-term unity and struggle among people from all walks of life in the border regions. This cohesion serves as a spiritual bond that helps guide people to promote positive socialist energy and establish correct values.

According to existing literature, research on the spirit of the poplar tree primarily focuses on theoretical explanations. Scholars have already conducted relevant analyses on the connotation and formation of the spirit of the poplar tree. For instance, Bai Guanfeng and Wang Yulin have provided detailed depictions of the connotation, formation process, and historical role of the spirit of the poplar tree (Bai, 2021a). Bai Guanfeng further elaborated on the specific connotation (Bai, 2021b) of the spirit of the poplar tree as well as explored its contemporary value (Bai, 2021c) and value orientation (Bai & Wang, 2020). Wang Zhengyi discussed the connotation and value of the spirit of the poplar tree (Wang, 2020). Xu Lin and Li Le provided specific interpretations of the spirit of the poplar tree in the new era (Xu & Li, 2019). These studies have made significant contributions to the research on the spirit of the poplar tree. However, there are still limitations.

This paper utilizes the scientific quantitative tool Cite Space software to analyze the research keywords, institutions, high-producing authors, and emerging terms of literature on the spirit of poplar trees, collected by China National Knowledge Infrastructure (CNKI). The analysis aims to present a knowledge map that better understands the research status and development trends of the spirit of poplar trees from 2000 to 2020. It is particularly noteworthy that this study focuses on the latest achievements since 2020, with corresponding supplements and updates made to the research topics section.

2. Research Design

2.1 Research Methods

This study utilizes the bibliometric software Cite Space for visual analysis to generate a knowledge map. As one of the most innovative methods in scientific research today, Cite Space is an information visualization software developed by Professor Chen Chaomei from the United States, based on theories such as co-occurrence networks and co-citation networks. The study employs a literature review method to analyze 109 related articles on the spirit of poplar trees, aiming to better identify research hotspots and predict future research directions, providing objective references for relevant studies. In summary, this study combines quantitative and qualitative research methods.

2.2 Data Sources

This study utilized the advanced search function of China National Knowledge Infrastructure (CNKI) to search for literature related to the ‘Poplar Spirit’ from January 1, 2000, to December 31, 2020. The literature was selected from academic journals, conferences, and newspapers. These data were chosen as the basis for the study primarily based on the data volume from Cite Space analysis and the development of the Poplar Spirit. The literature was divided into two parts for research: one part consisted of academic journal articles, with 213 documents retrieved. After manual screening, 109 effective documents were obtained. The other part included conference and newspaper media reports, with 34 documents retrieved. After manual screening, 26 effective documents remained.

2.3 Data Processing

After matching the two parts of the article, the reference literature was exported in RefWorks format. The final files were named download 1.txt and download 2.txt, respectively. These files were then converted into a software-compatible format, named download1converted.txt and download2converted.txt, respectively. Using Cite Space software, data processing was conducted to create specific projects. The Time Slicing time interval was set from January 1, 2000, to December 31, 2020, and the Years Per Slice minimum statistical time was set to one year. The threshold selection was set to the top fifty (Top 50). The network pruning settings were set to Pathfinder and Pruning the Emerged Network. A knowledge map of the research on the spirit of poplar trees was then created. After converting the media reports into the required format, the software requirements were not met. Therefore, this paper only selected 109 articles from academic journals for visualization analysis.

Based on these data, this study first used the information visualization software Cite Space to create a scientific knowledge map. The scientific knowledge map has both graphical and spectral characteristics, serving as both a visualized knowledge graph and a serialized knowledge spectrum. It displays the network structure interaction, crossover, evolution, or derivation of various implicit complex relationships among knowledge units or knowledge groups (Chen et al., 2015). This can vividly illustrate the knowledge map of key terms, authors, and institutions in the field of research on the spirit of poplar trees. On the basis of scientific knowledge map, Wen also carried out qualitative literature analysis and made corresponding analysis from the perspective of research framework and research path.

3. Analysis of the Characteristics of Research Literature on the Spirit of *Populus euphratica*

3.1 Analysis of Core Authors

In the author collaboration network of papers in a specific field, authors with a high number of publications indicate their influence and appeal in that field. The network also reveals the connections between different authors in the same field (Ma et al., 2018). Analyzing the knowledge graph of these authors can clearly highlight the core authors in the field of the Hu Yang Spirit. By analyzing the 109 articles published in academic journals by these authors, Figure 1 shows that Professor Ai Meihua, Deputy Dean of the School of Journalism and Communication at Xinjiang University of Finance and Economics, has the most publications in this field. In 2012, Professor Ai Meihua collaborated with colleagues at her university to publish ‘Strategies for Campus Culture Construction in Response to the Great Development of Education’ and ‘The Hu Yang Spirit: A Shared University Spirit among Universities in Southern Xinjiang.’ These articles emphasize the role of the Hu Yang Spirit in the campus culture construction of universities in southern Xinjiang. The figure shows a certain degree of association between these two authors, with closely connected nodes indicating a cooperative relationship.

In 2013, two more articles were published: “Research on the Development of Campus Culture Construction in Xinjiang Universities” and “The Frontier Style of Campus Spirit Culture in Xinjiang Universities.” These studies focused on the role of the *Populus euphratica* spirit in campus culture construction. Additionally, Xia Xiaoling published four articles, Guo Chengge and Wang Ling each published three articles, and other scholars also made

significant contributions to the research on the *Populus euphratica* spirit.

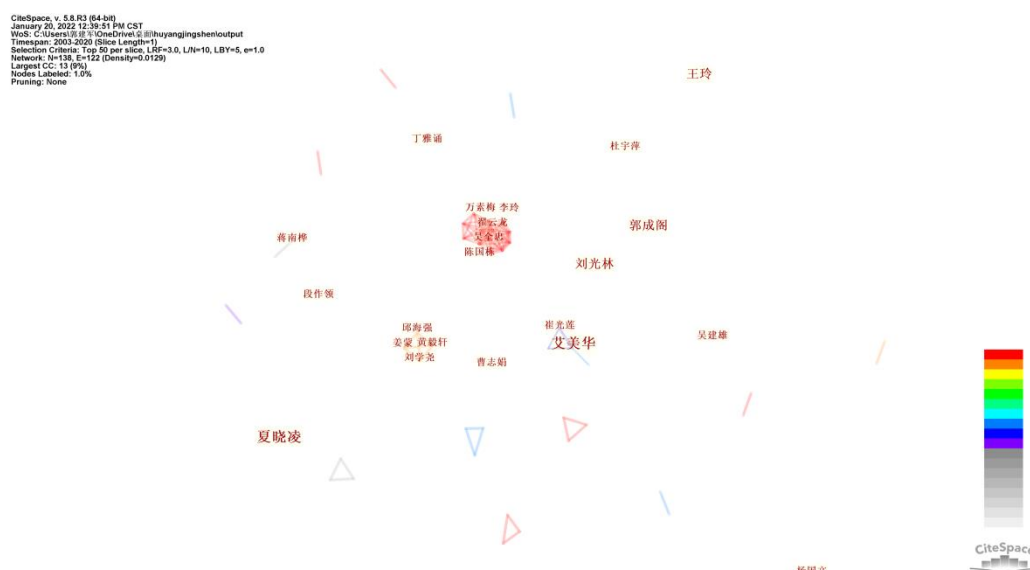


Figure 1. Core author distribution knowledge map

According to the Prisley Law, authors who have published more than N articles in a specific research field are considered core authors. Using the formula $N0749$, the number of Hu Yang Spirit studies from 2000 to 2020 is calculated to be 1498. This means that the high-producing authors of Hu Yang Spirit research have published at least one article. Through the author statistics function of CiteSpace software, 138 nodes, or 138 authors, were identified, including multiple authors of a particular article. After screening and statistical analysis, it was found that 25 authors have published more than one article, including Ai Mei Hua with 4 articles, Guo Cheng Ge with 3 articles, Wang Ling with 3 articles, Liu Guang Lin with 3 articles, Cui Guang Lian with 2 articles, and Xiao Tao with 2 articles. According to the Prisley Law, when the proportion of core authors' publications reaches over 50%, a core author group is formed. The statistics show that the number of publications by core authors exceeds 50% of the total publications, indicating that a certain core author group has been formed in the study of Hu Yang Spirit. The main reasons are as follows: First, the quality of articles by the first author group is relatively high, mainly including contemporary educational practice and teaching research, journalism and communication, media literature, education, and practicality. Second, Ai Mei Hua, Cui Guang Lian, and Guo Cheng Ge are well-known experts in this field, high-producing authors with a solid foundation in the research area. Third, these high-producing authors have a high number of publications and citations, which gives them significant academic influence. However, it is worth noting that Tarim University, a typical practice of Hu Yang Spirit, has made relatively little contribution to the study of Hu Yang Spirit in its early stages, and even now, there are no representative researchers. To some extent, there is a noticeable gap between rich and vivid practices and systematic theoretical research. Additionally, most researchers are from Hu Yang's spiritual agent and the object of his action are absent from the group of researchers as a whole.

According to the knowledge graph of core author distribution, Figure 1 shows that the knowledge graph has formed 138 nodes and 122 connections. The density is 00129, indicating that the cooperation among researchers in this field is not close and relatively dispersed, and no real academic team has been formed yet.

3.2 Analysis by Key Institutions

Xu Zhenyu and others proposed that analyzing the core authors and publication volumes of major research institutions in a specific field both domestically and internationally can help scholars gain a clearer understanding of the current research status and strength in this field (Xu et al.,2019). By analyzing the institutions of authors, it can be seen that the core institutions in the study of the Hu Yang spirit are illustrated in Figure 2. Analysis of Figure 2 shows that Tarim University, the School of Economics and Management at Tarim University, and others have a high number of publications. The Party Committee of Tarim University, the Publicity Department of the Party Committee of Tarim University, the College of Humanities at Tarim University, and the School of Economics and Management at Tarim University are all categorized under Tarim University. It was found that Tarim University has published a total of 13 articles, ranking it as the core institution among all

institutions. Analysis of the institutions reveals that in the study of the Hu Yang spirit, universities are the primary publishing institutions, such as Tarim University, Inner Mongolia University, the School of Art at Xinjiang University of Finance and Economics, and Xi'an University of Science and Technology.

In Figure 2, the nodes represent 56 institutions, with 0 connections and an average degree centrality of 0. This indicates that the research institutions are relatively scattered and have minimal collaboration, reflecting a personal view formed by industry experience and academic reasoning. This suggests that most studies lack practical and theoretical cooperation. In the figure, 13 larger nodes have published more than 2 papers. From the perspective of research institutions, these are mainly concentrated in universities, with Tarim University publishing the most papers (13). Although Tarim University has published the most papers, it is a typical example of the practice of the *Populus euphratica* spirit. The earliest publication by Tarim University was in 2011, and for a considerable period, the research on the *Populus euphratica* spirit was largely silent.

CiteSpace v. 5.8.R3 (64-bit)
January 20, 2022 1:20:16 PM CST
Work: C:\Users\liu\OneDrive\liuhuyang\shenoutput
Timespan: 2003-2020 (Slice Length=1)
Selection Criteria: Top 50 per slice, LRF=0.3, L/N=10, LBY=5, w=1.0
Network: N=56, E=0 (Density=0)
Largest CC: 1 (1%)
Nodes Labeled: 1.0%
Pruning: None

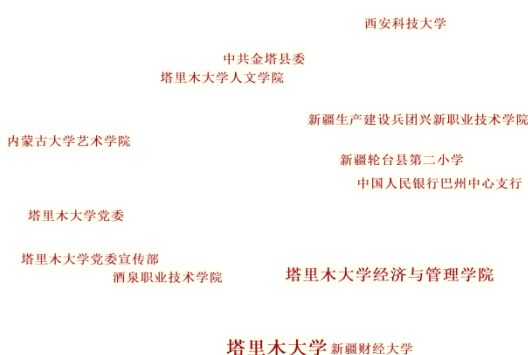


Figure 2. Knowledge map of important institutions distribution

3.3 Article Volume Analysis

The number of publications is a key indicator for assessing the development trend of a specific field over a certain period (Qiu et al., 2019). It also provides a more intuitive view of changes in research interest within that field, which is crucial for analyzing the development trend and predicting future trends. This paper analyzes 109 academic journal articles, exported from China National Knowledge Infrastructure (CNKI) in End Note format, using SATI literature citation information statistical analysis software and Excel tools to generate Figure 3.



Figure 3. Line graph of the number of articles on the spirit of *Populus euphratica*

As shown in Figure 3, the earliest research on the spirit of the poplar tree began in 2003. Before 2010, the research was in its early stages with limited attention. From 2011 to 2013, it entered a transitional phase. After 2014, the number of research papers on the spirit of the poplar tree began to increase, reaching 23 in 2019. In 2018, President Xi Jinping made important remarks on education, coinciding with the 60th anniversary of Tarim University. He also gave significant instructions to this university, a model of the spirit of the poplar tree, emphasizing the use of the spirit of the poplar tree to cultivate people and serve Xinjiang's border areas. In the following period, research on the spirit of the poplar tree gradually became a hot topic.

3.4 Analysis of Core Journal Publications

In this section, we will analyze the sources of published articles. The analysis of media reports on the institutions that publish articles can be found in the core journals of the Hu Yang Spirit research field. The same method used for analyzing the adoption and publication volume of these journals is applied to generate Figure 4. Through the analysis, it is evident that the top five journals in this field are the Contemporary Corps, which has published 13 articles and is the primary journal for Hu Yang Spirit research. This is because Tarim University, a practitioner of the Hu Yang Spirit, is part of the Xinjiang Production and Construction Corps, and the Contemporary Corps was also established in this corps. Similarly, the Third Corps Workers' Movement ranks third.

In October 2018, the Contemporary Corps published an article titled 'Building a Talent Reservoir in Southern Xinjiang,' which discussed the spirit of the poplar and the talent development strategy at Tarim University (Benkan Bianjibu, 2018). President Xi Jinping's comments on the 60th anniversary of Tarim University spurred more research on the poplar spirit in mainstream journals like the Contemporary Corps. For example, 'The Poplar Spirit: A Unique Force in Education' and 'The Poplar Spirit at Tarim University: Nurturing New Talent' were published. Additionally, the Team World journal published six articles, ranking second.

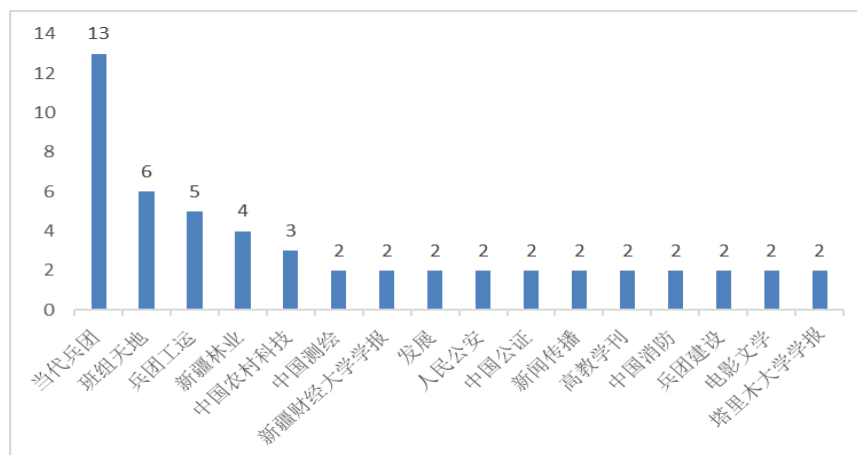


Figure 4. Statistical chart of the number of publications of Hu Yang Spirit Research Institute

The following is a statistical chart of the number of institutional publications on media reports about the spirit of the poplar tree. Figure 5 reveals that, through specific analysis, the top six institutions in this section are the Corps Daily, which has published four articles on the spirit of the poplar tree. This institution is the primary source for media reports on the spirit of the poplar tree, and its internal reasons are similar to those of the contemporary Corps.

However, the relevant articles in the Corps Daily mainly appeared later, primarily in 2018. Previous reports were largely absent, mainly due to the peak in the number of articles published in 2019. This was because media reports require timeliness, so related articles were published in 2018, such as using the spirit of the poplar trees to educate and cultivate people, what kind of people to cultivate, how to cultivate them, for whom they are cultivated, and to be a good border guard in the new era.

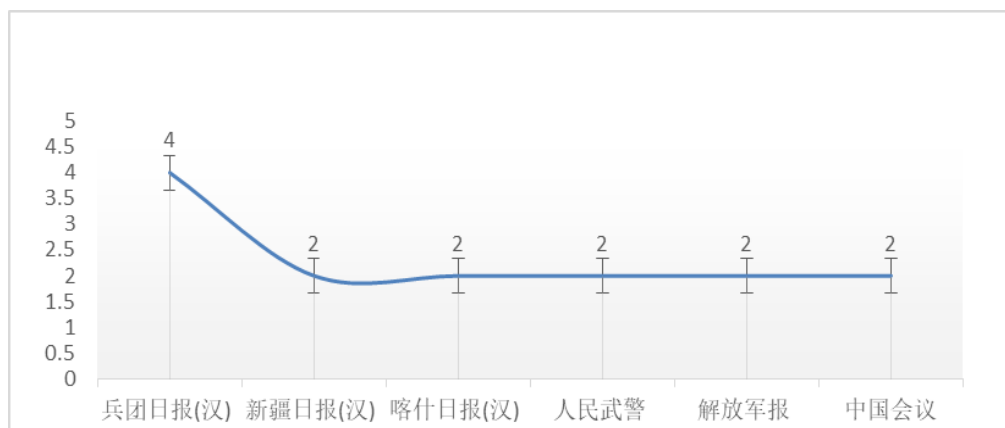


Figure 5. Statistical chart of the number of media reports on the study of poplar spirit

4. Development Trend and Research Frontier of Poplar Spirit

4.1 Keyword Analysis

Through the keyword analysis of the research papers on the spirit of *Populus euphratica*, it can be clearly seen that the distribution of high-frequency keywords in this field can be obtained through statistics. Figure 6 shows that other high-frequency keywords in this field are 55 times for the spirit of *Populus euphratica*, 11 times for the spirit of the Corps, 7 times for the poplar tree and 5 times for *Populus euphratica*.

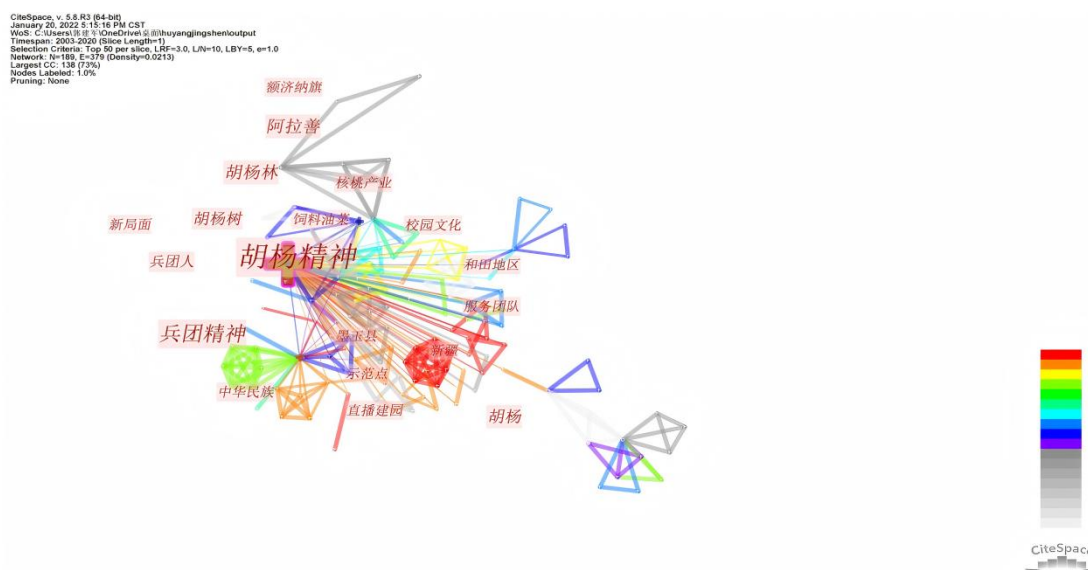


Figure 6. Keyword co-occurrence map of poplar spirit research

By continuing to perform cluster analysis on the keyword graph in CiteSpace using the log-likelihood ratio (LLR) algorithm, a keyword clustering graph has been generated, as shown in Figure 7. This graph primarily helps to identify research hotspots and the degree of concentration. The modularity Q value is 0.733, indicating that the identified community structure is significant. The weighted mean silhouette (S value) is 0.9515, suggesting that the clustering results have high reliability when the S value exceeds 0.7. In summary, the results of Q and S values indicate that the obtained results are relatively ideal.

The centrality in the chart is a metric that quantifies the importance of nodes within a network. A higher number indicates greater centrality. The centrality of the Hu Yang Spirit is 0.95, the highest value, indicating its highest centrality. Year represents the year when the keyword first appeared. The Hu Yang Spirit first appeared in 2003. At the same time, the Hu Yang tree and the Hu Yang were also mentioned, indicating a connection between the

study of the Hu Yang Spirit and the Hu Yang tree and the Hu Yang. In 2003, Liu Guangjing's article "Red Willow and Hu Yang Comrades" introduced the qualities of red willow and Hu Yang in adapting to harsh environments, highlighting their natural attributes and attributing humanistic qualities to them. This led to the introduction of the spirit of red willow and Hu Yang in "The Spirit of Red Willow and Hu Yang Arrives in Golmud." The article then introduced the Hu Yang and the Hu Yang forest, elevating the theme. Wang Ling's article "A Thousand-Year-Old Hu Yang at Ease in Xinjiang's Bayingolin Prefecture Weili County" first discussed the Hu Yang tree, then the Hu Yang, and finally introduced the spirit of the Hu Yang.



Figure 7. Keyword clustering map of poplar spirit research

4.2 Timeline Analysis

The timeline chart is primarily used to illustrate the relationships between clusters and the historical span of documents within a specific cluster, allowing for an understanding of the mutual relationships and influences between clusters over time. In this chart, years are plotted on the x-axis, and clusters on the y-axis. Each cluster represents a category, and the more documents there are, the more significant the cluster becomes. Cite Space's timeline chart feature not only visualizes the evolutionary path but also clusters related keywords by theme (Li & Chen, 2016), generating a timeline chart as shown in Figure 8.

Cluster 1 represents the spirit of the Production and Construction Corps, which spans from 2009 to 2020. The emergence of this spirit played a crucial role in the study of the *Populus euphratica* spirit, particularly in its subsequent development as a spiritual symbol for the people of the Corps. It emerged on the land of southern Xinjiang and is closely linked to the fate of the *Populus euphratica* spirit at Tarim University.

Cluster 2 covers the poplar forest from 2003 to 2020, while Cluster 3, which also spans the same period, highlights the importance of the poplar forest and the poplar spirit in the promotion of research on the poplar spirit. The keywords under both clusters, such as symbolic inheritors, the Corps people, teaching design, teacher training, and spiritual poverty alleviation, are closely linked to the study of the poplar spirit, as identified through a review of earlier literature.

Cluster 4 covers the Alashan region from 2009 to 2020. The poplar spirit transcends geographical boundaries, and Alashan, as one of these regions, reflects the competition for discourse power among different areas. This is evident in the paper 'The Sky-like Alashan: Research on the Strategies for Shaping the Urban Cultural Brand Image of Alashan,' which explores the poplar spirit and its connection to Alashan. The articles also delve into the poplar spirit, Alashan, and the local people, such as the Alashan traffic police, the poplars in the Gobi Desert, and the Alashan firefighters.

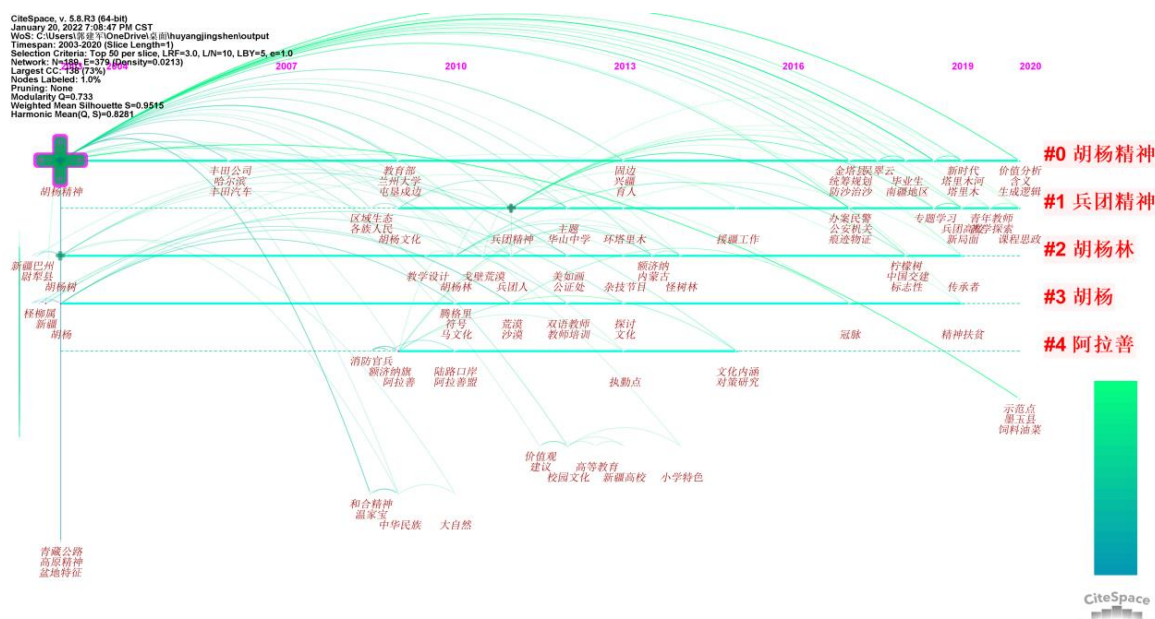


Figure 8. Timeline of research on the Spirit of Populus euphratica

According to the timeline chart of keywords in Figure 8, the areas with a longer time span include 0 Hu Yang Spirit, 2 Hu Yang Forest, and 3 Hu Yang Long-term Existence. The new keywords with active status include 0 Hu Yang Spirit and 1 Corps Spirit. From the distribution of keywords over time, most high-frequency, medium-centrality keywords are concentrated in 2018 and 2020. In 2018, President Xi Jinping emphasized at the Third Central Xinjiang Work Conference the importance of promoting national and contemporary spirits, practicing the Hu Yang Spirit and the Corps Spirit, and inspiring cadres at all levels to take root and dedicate themselves to the border regions in the new era. In 2019 and 2020, key terms such as the value analysis and generation logic of the new era special topic learning emerged. This is closely related to President Xi Jinping's speech at the Third Central Xinjiang Work Conference. The analysis shows that the research in this field aligns with national policy trends, and the research focus closely follows mainstream discourse and relevant policies, reflecting a strong policy orientation.

4.3 Research Trends

Sudden emergence graph analysis is a method for predicting the intensity of future emerging trends. The greater the intensity, the more active the keywords are, and the more research is conducted. To some extent, the sudden emergence graph indicates a shift or change in research focus. By analyzing the sudden emergence graph of keywords related to the Hu Yang spirit, it is evident that Figure 8 shows that the term 'Hu Yang spirit' first appeared in 2003, with a sudden emergence intensity of 542, a connection degree of 92, and an appearance frequency of 55.

According to Figure 9, the focus on the spirit of the poplar tree mainly occurred from 2018 to 2020. The primary reasons for this were: first, during the 60th anniversary of Tarim University, a typical practice site of the poplar tree spirit, President Xi Jinping's important instructions boosted research on the poplar tree spirit across society; second, various media outlets, such as the Guangming Daily with an article titled 'One University, One Spirit: Tarim University's 60 Years of Staying True to Its Original Aspiration and Keeping Its Mission Firmly in Mind' and the People's Daily with an article titled 'A Unique Force in the Field of Education,' sparked widespread attention to this university that embodies the spirit of the poplar tree.

Top 1 Keywords with the Strongest Citation Bursts

Keywords	Year	Strength	Begin	End	2003 - 2020
胡杨精神	2003	5.42	2018	2020	

Figure 9. A prominent study on the Spirit of Populus euphratica

At the same time, the analysis of the data from 109 selected academic journal articles using a topic term frequency cloud reveals that the research frontier topics and hot issues over a certain period are highlighted in Figure 10. The study on the spirit of the poplar tree has been the most focused topic and hotspot during this period. Based on this, it is predicted that the research on the spirit of the poplar tree will continue to increase after 2020. Tarim University, as a typical representative of the spirit of the poplar tree, although initially almost in a state of theoretical silence, will become one of the key institutions for researching the spirit of the poplar tree. Additionally, the research on the spirit of the poplar tree will gradually form a research trend, attracting interpretations and studies from relevant scholars and experts.



Figure 10. Keyword frequency cloud of research themes on poplar spirit

5. Analysis of the Research Themes of Poplar Spirit

Based on the analysis of the previous keyword clustering map timeline graph and emergence graph, the research framework and path of the study of the spirit of Hu Yang are as follows.

5.1 Research Framework

From the perspective of the research framework in this field, the existing studies on “Populus Euphratica Spirit” primarily unfold around themes such as its formation process, essential core, content themes, value implications, and contemporary significance. Research on “Populus Euphratica Spirit” generally follows three frameworks: “Connotation-Formation,” “Significance-Interpretation,” and “Experience-Enlightenment.”

Studies under the “Connotation-Formation” framework mainly start from the geographical distribution characteristics of *Populus euphratica*, linking its inherent natural attributes with human qualities to endow it with cultural significance, thereby forming the “*Populus Euphratica Spirit*.” For example, in 2009, Zeng Changjiang wrote “The Bright Moon Shines on Flowing Gold, the Qiang Flute Sings a New Melody—Chronicling Zhang Kun, Winner of the National May 1st Labor Medal.” In 2015, Zhang Dahui used *Populus euphratica* to praise a prosecutor in “Desert Populus—Chronicling Abulaiti Tiemuer, a Prosecutor at the Kashgar Procuratorate in Xinjiang.” In such works, authors or researchers metaphorically associate individuals with qualities like endurance, selfless dedication, tenacious survival, and rootedness in border regions with the *Populus euphratica* tree, using the tree’s characteristics to symbolize human virtues. These traits are then distilled into a spirit represented by the qualities of *Populus euphratica*: the “*Populus Euphratica Spirit* (Long & Xiao, 2019).” This line of research is based on the qualities of *Populus euphratica*, which are used to represent human virtues. Researchers have explored how the spirit of the *Populus euphratica* can be connected to human character through its symbolic qualities (such as hard work and selfless dedication), thus forming a representative spiritual force (Sun, 2024).

Research under the “Significance-Interpretation” framework includes, on one hand, interpretations, discussions, and explanations of “Populus Euphratica Spirit” in the context of campus culture construction. Researchers have analyzed the depiction of the *Populus euphratica* in literary works from a literary perspective and its symbolic significance, especially its role in campus culture construction (Wang & Wang, 2025). On the other hand, it involves interpreting the spirit in light of relevant speeches and its specific connotations and values. For instance, in his speech at the Third Symposium on Xinjiang Work, General Secretary Xi Jinping emphasized the need to

promote the “Populus Euphratica Spirit” and the “Bingtuan Spirit,” noting that their essence aligns with socialist core values. This provides a value-oriented direction for the promotion, inheritance, and role of “Populus Euphratica Spirit” in nurturing individuals and shaping values.

Studies under the “Experience-Enlightenment” framework primarily focus on summarizing experiences, extracting patterns, and deriving insights. On one hand, existing research on “Populus Euphratica Spirit” mainly revolves around education and the shaping of core values. Through continuous practical exploration, a set of relatively effective methods has been summarized. Researchers have summarized the practical experience of the spirit of the *Populus euphratica* in university ideological and political education, proposing effective methods and strategies (Liu Lulu, 2023). On the other hand, although practical experiences vary in representation across different media, the focus of media coverage tends to emphasize the role of “Populus Euphratica Spirit” while lacking specific methodological strategies for its dissemination.

These three narrative frameworks organize the current research on “Populus Euphratica Spirit,” providing a theoretical foundation for related studies.

5.2 Research Approach

Based on the aforementioned foundational keywords and keyword clustering, combined with a review of relevant literature, the research on “Poplar Spirit” can be categorized into four main disciplinary approaches: educational research, value research, ideological and political research, and communication research.

Firstly, educational research primarily focuses on the role of the “Poplar Spirit” in classroom teaching, core values cultivation, and talent development. It emphasizes the spiritual power of the “Poplar Spirit” in campus culture construction, with Tarim University serving as a typical example. The spirit plays a significant role in classroom teaching, student values education, and moral development. Some researchers have explored how to enhance the educational effect of *Homo sapiens* among students in Xinjiang universities through the spirit of *Populus euphratica*, particularly its role in campus cultural construction (Cao & Yang, 2023).

Secondly, value research can be divided into two aspects. First, the promotion and inheritance of the “Poplar Spirit” are closely tied to Tarim University, but its formation is inseparable from the pioneering and border-guarding efforts of generations of Corps members. This means that research on the “Poplar Spirit” is inevitably linked to the “Corps Spirit” formed by these pioneers, with its value lying in developing the frontier and stabilizing the borders, as well as in talent cultivation. The motto upheld by Tarim University, “Educating with the Poplar Spirit, Serving the Development and Stabilization of the Frontier,” is a reflection of this value. Second, the formation of the “Poplar Spirit” is associated with a broader human context, primarily focusing on the geographical distribution and qualities of the poplar tree, which are imbued with humanistic attributes, leading to a series of studies that connect the qualities of the poplar with human values. Some researchers have analyzed the historical origins and great value of the *Populus euphratica* spirit, particularly its connection with the Corps spirit, as well as the role of this spirit in revitalizing Xinjiang and consolidating border stability (Xia & Yang, 2024). Other scholars have explored the new significance of the *Populus euphratica* spirit in modern society (Wang, 2022) and redefined its contemporary value from the perspective of frontier governance (Wang, 2022).

Thirdly, ideological and political research is mainly reflected in “classroom teaching,” specifically through university ideological and political courses. Delivering effective ideological and political lessons is a compulsory aspect of higher education, with a focus on teaching research, including teaching content, methods, techniques, and effectiveness. Additionally, the “Poplar Spirit” serves as a catalyst in shaping and guiding the values of university students. Researchers have conducted in-depth discussions on how the spirit of the *Populus euphratica* can be integrated into the ideological and political theory courses in Xinjiang universities, including the teaching content, methods, techniques, and their impact on cultivating students’ values (Cong et al., 2024).

Lastly, communication research is manifested in two aspects. On one hand, it involves media coverage of the “Poplar Spirit,” particularly after the 60th anniversary of Tarim University and reports such as those on Focus Interview. On the other hand, it includes theoretical communication research, which is relatively limited. For example, the study *Research on the Communication of the Poplar Spirit from the Perspective of Speech Act Theory* explores the external dissemination of the “Poplar Spirit.” In future research, a communication perspective should be further integrated into related studies. On the one hand, researchers have focused on the dissemination methods and strategies of the spirit of the *Populus euphratica* in the new media era, especially after the 60th anniversary celebration of Tarim University, which provides an important perspective for communication research (Zhao, 2021). On the other hand, researchers have explored the role of the spirit of the *Populus euphratica* in the inheritance of Chinese civilization from a media and epochal perspective (Xie & Zhou,

2021).

In summary, the four research approaches have conducted studies on the “Poplar Spirit” within their respective disciplinary contexts and have achieved some progress. However, communication research remains relatively underdeveloped and requires further emphasis on using communication theories for analysis and research.

6. Conclusion and Discussion

6.1 Conclusion

This paper employs the CiteSpace quantitative software and qualitative literature analysis to examine 109 academic journal articles from 2000 to 2020, conducting an in-depth analysis of the core authors, publication volume, key institutions, keywords, research frameworks, and research trajectories in the field of “Populus Euphratica Spirit” studies. The conclusions drawn are as follows: First, a core group of authors has emerged, but the connections among them remain relatively scattered. Second, Tarim University stands out as the leading publishing institution, though it experienced a period of “silence” in the early stages. Third, the number of publications has gradually increased, with Contemporary Corps serving as the primary core journal. Lastly, “Populus Euphratica Spirit” once became a dominant research trend, forming certain frameworks and trajectories, yet communication research pathways remain underexplored.

Therefore, in the study of “Populus Euphratica Spirit,” it is essential not only to emphasize the theoretical foundations of existing research but also to pursue further investigations from diverse perspectives.

6.2 Discussion

Overall, since 2018, the core achievements in the research field of the “Poplar Spirit” have focused on national strategies, grounded in the educational mission and the development of border regions, forming research directions with practical characteristics and a certain number of research outcomes. At the same time, it has attracted a group of researchers from both academia and industry, who have explored the “Poplar Spirit” from four research approaches: educational research, value research, ideological and political research, and communication research. These studies have provided intellectual support and theoretical foundations for the “Poplar Spirit” under three frameworks: connotation-formation, significance-interpretation, and experience-inspiration. In the process of development, the field has continuously adapted to the times, forming its own research domain and aligning with specific national policies, fully leveraging the role of academic resources in educating people within the “Poplar Spirit” research field. However, the overall research quality in this field does not match its quantity. Moreover, compared to its status as a concept strongly advocated and valued by the state and its role in campus cultural construction in universities, there is an urgent need for improvement in related research. This deficiency is manifested in the following aspects:

6.2.1 Theoretical Misalignment and Absence

First, the current research on the “Poplar Spirit” is partly based on the natural attributes of the poplar tree and its connection to human qualities, but it lacks a well-formed theoretical framework. The relevant studies are relatively superficial. For example, based on the geographical distribution of poplar trees, their resilience in overcoming harsh natural environments is linked to the steadfast and selfless dedication of individuals, forming the “Poplar Spirit.” As scholar Du Xin noted, the poplar is an embodiment of life and unity, never isolated but inclusive, coalescing into a spirit that mirrors the qualities of aerospace professionals (Du, 2015).

Second, research on the “Poplar Spirit” in campus cultural construction, with “Tarim University” as a typical case study, has primarily focused on teaching, ideological and political education, core values, and campus culture. However, these studies are relatively fragmented and lack a comprehensive reference system. Before 2018, Tarim University was almost silent in research. On the occasion of its 60th anniversary, General Secretary Xi Jinping made an important directive on the letter from some teachers at Tarim University addressed to him: “Educate people with the Poplar Spirit and serve the development and stabilization of the border regions. Tarim University has remained true to its original mission for 60 years, cultivating batches of talented individuals who are rooted in and dedicated to the border regions, providing a vivid answer to the fundamental questions of whom to educate, how to educate, and for whom to educate (Luo & Gu, 2020).” At the same time, during the Third Central Xinjiang Work Symposium, he stated: “We must promote the national spirit and the spirit of the times, practice the Poplar Spirit and the Corps Spirit, and inspire cadres at all levels to root themselves in and dedicate themselves to the border regions in the new era.” He also emphasized the need to use the news media to vigorously promote the Poplar Spirit and the Corps Spirit, shouldering the responsibilities and missions that come with it. At present, Tarim University is expected to become a major force in the research on the “Poplar Spirit.”

Finally, as mentioned earlier, there is a lack of research resources in the field of communication studies on the “Poplar Spirit.” The external dissemination of the concept has not been given sufficient attention, nor has there been in-depth research on the theoretical breadth and depth. In the future, further research from the perspective of communication theory is needed.

6.2.2 Insufficient Interdisciplinary Collaboration

Based on the previously generated knowledge maps of core authors and key institutions, it is evident that the research field of the “Poplar Spirit” has a very limited number of core authors, with almost no collaboration between institutions. Institutions have yet to break through cross-sectoral cooperation, and interdisciplinary collaboration is also nearly non-existent. Therefore, it is essential for us to continuously explore ways to break boundaries and foster collaboration between institutions and disciplines.

To address the aforementioned issues, it may be necessary to achieve research paradigm transformation through the following approaches: breaking boundaries—establishing close collaboration between academia and industry; integrating—promoting close cooperation across different disciplines; and innovating—strengthening collaboration and discussion among different institutions, as well as grafting the latest research findings (Hu & Hu, 2021).

First, the research on the “Poplar Spirit” requires breaking boundaries and fostering collaboration between academia and industry. The aforementioned knowledge maps show that currently, there is limited collaboration among authors and institutions within the field, and cooperation between industry and academia is almost non-existent. This characteristic has led to industry focusing solely on production, emphasizing derivatives related to the formation of the “Poplar Spirit,” such as Poplar culture, which makes it difficult for the research on the “Poplar Spirit” to achieve academic depth and breadth. On the other hand, academia, particularly represented by university scholars, focuses on interpreting the speeches and policies of leaders, concentrating on research related to campus culture and teaching, while lacking experiential insights from industry practices. Academia urgently needs more practical experience to generate theoretical contributions. Therefore, it is necessary for industry and academia to break down boundaries and collaborate seamlessly.

Second, the research on the “Poplar Spirit” requires a multidisciplinary research perspective. The study of the “Poplar Spirit” needs a multi-dimensional, interdisciplinary, and diverse approach. Among the four research approaches—educational research, value research, ideological and political research, and communication research—communication research is relatively loosely connected compared to the other three. In the literature review and analysis, the most frequently occurring keywords are “Poplar Spirit” and “Corps Spirit.” When integrated into the four research approaches, the “generation and connotation of the Poplar Spirit” becomes a foundational issue in the research. For a proposition like the research on the “Poplar Spirit,” it is necessary for the four research approaches to collaborate in order to enrich the theoretical perspective of the research.

Finally, the research on the “Poplar Spirit” requires theoretical construction. It is essential to utilize the latest theoretical resources, trace previous research, and construct a theoretical model for the research on the “Poplar Spirit,” providing a theoretical foundation for future studies. Currently, there is limited research on the “Poplar Spirit” from the perspective of communication studies. It is hoped that future research will not only employ narrative and semiotic methods from communication studies for a deeper interpretation but also utilize diverse research methods and multiple perspectives for exploration. Additionally, it is important to effectively leverage the latest research findings to advance the study further, making innovative research on the “Poplar Spirit” possible.

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