

Investigation of Environmental Protection Planning and Future Vision of Taishan Cultural Heritage Area

Hanjin Yue*

Henan Agricultural University, Zhengzhou, 450046, China

*yhjlunanana233@gmail.com

Abstract

Mount Tai is not only a treasure of Chinese history and culture, but also a place rich in natural resources. For thousands of years, Mount Tai has attracted thousands of tourists to seek its unique charm. However, with the prosperity of tourism, the environmental condition of Taishan Mountain Reserve should not be underestimated. The vastness of this mountainous region and its complex topography pose great challenges for environmental protection and planning. This paper focuses on this, discusses in depth the current environmental planning challenges of Mount Tai, and proposes targeted solutions to seek continuous improvement of the ecological environment of Mount Tai.

Keywords

Mount Tai; Mountain-Type Scenic Area; Environmental Protection; Future Planning.

1. Introduction

Mountain-type scenic area is a regional complex with a sense of aesthetics with mountain landscape as the main scenic resources and composition elements. Mount Tai is a typical mountain-type scenic area, and as the first of the five mountains in China, Mount Tai is famous for its steep mountains, magnificent natural landscape and long cultural history. However, with the booming development of tourism, the environmental problems in the Taishan area have gradually come to the fore. Problems such as soil erosion, biodiversity reduction, and garbage pollution are constantly emerging, posing a serious threat to the ecological environment and sustainable development of Mount Tai. In order to protect the ecological environment of Taishan, the regulatory authorities should focus on the sustainable development of the region and even the neighboring areas, and strive to promote the coordinated development of economy, society and natural ecology. Environmental protection supervision should be strengthened to raise the environmental awareness of tourists and promote the implementation of environmental protection regulations. At the same time, the sustainable development of the local tourism industry should be promoted, and the development of eco-tourism programs should be encouraged to attract tourists to participate in ecological environmental protection.

In addition, the protection and restoration of ecological resources in the Taishan region should be increased, and the implementation of ecological restoration and protection projects should be promoted. Scientific research institutions and experts and scholars are encouraged to join the ecological protection work to promote biodiversity protection and vegetation restoration. Due to the special nature of Taishan's historical significance, the Taishan Natural Scenic Area belongs to both natural heritage and cultural heritage, in view of which, the importance of protecting the natural ecological environment of the area and passing on the humanistic history should not be underestimated; it is not only the embodiment of the 5,000 years of historical and cultural inheritance, but also a positive response to the call of "green water and green

mountains are golden silver mountains". Only through the joint efforts of the whole society can the ecological environmental protection and sustainable development of Taishan be realized.

2. Overview of Taishan Cultural Heritage Area

Located in the North China Plain, Mount Tai is one of the Five Mountains of China, geographically located at latitude 36°15' to 36°29' north and longitude 117°01' to 117°17' east. The main peak, Jade Emperor Peak, reaches an altitude of 1545 meters above sea level, and the terrain is so steep that it has been a sacred place in ancient China since time immemorial. Mount Tai not only has magnificent natural scenery, but also carries a rich historical and cultural heritage. In the Taishan area, the peaks are craggy and the terrain is complex and diverse, including peaks, gorges, streams, waterfalls and other natural landscapes. At the same time, historical and cultural relics are also part of the area that cannot be ignored, such as Taishan Rock Carvings, Taishan Altar, and the Monument to Confucius' Ascent of Taishan, which have survived to the present day. These cultural heritages prove that Taishan is a source of inspiration for literati and writers, attracting a large number of tourists to come to worship, hike and feel its charm. As a famous tourist destination in China, Mount Tai has numerous natural and humanistic attractions, such as Jade Emperor Peak, South Heavenly Gate, Eighteen Plates, and Middle Heavenly Gate. These attractions attract tourists from all over the world. The landscape resources of Taishan Scenic and Historic Spot are based on the "Scenic and Historic Spot".

Landscape resources can be divided into two categories: natural landscape resources and humanities landscape resources according to "Planning Standards for Scenic and Historic Areas" (GB50298-1999). According to "Tourism Resource Evaluation, Classification, and Investigation" (GB/T 18972-2017), the landscape resources are roughly divided into five categories: 400 m outside the first-level landscape resources, 300 m outside the second-level landscape resources, 200 m outside the third-level landscape resources, 100 m outside the fourth-level landscape resources, and other areas[1].

However, with the development of tourism, the ecological environment in the Taishan area has been subjected to a certain degree of pressure and challenges, and problems such as damaged ecosystems and garbage pollution need to be solved urgently. Mount Tai is known as "the first of the five mountains", the world's natural and cultural double heritage, national scenic spots, the world geopark and so on[2]. As well as the scenic area is located in the urban area of Tai'an City, for the city edge type scenic area, the city edge mountain type scenic area because of the close proximity of the city construction area, the edge of the scenic area is prone to urbanization of the landscape characteristics, this phenomenon is particularly significant in the scenic area and the city construction area junction, as well as scenic area entrance and exit of the tourist service facilities reflected [3].

The area is rich in natural resources and has a long history and culture, which has a high value of protection and management. Through scientific research and planning, the ecological environment of Taishan Scenic and Historic Spot can be better protected so that more people can personally experience this magical place. To summarize, Mount Tai is not only one of the desired destinations for travelers in China and even in the world, but also a witness of history and culture and a representative of natural scenery. We should pay attention to the natural environmental protection in the Taishan area and take care of this valuable natural and cultural heritage.

3. Analysis of the Efficiency of Environmental Protection Planning in Taishan Area

3.1. Environmental Problems Caused by Human Activities

Taishan is currently facing serious ecological challenges. Some improper development of tourist attractions has caused problems such as surface subsidence and indiscriminate logging in Taishan; at the same time, because Taishan comes with historical and cultural deposits, people's pursuit of Taishan stones has also caused many problems, such as illegal quarrying. For a long time, human activities have produced a certain degree of damage to the ecosystem of Taishan, resulting in the reduction of vegetation in some areas, serious soil erosion, and the gradual deterioration of the ecological environment.

Meanwhile, the rapid development of tertiary industry in recent years has also led to the increasingly prominent problem of garbage pollution in Taishan. The quality of tourists is uneven, and many tourists throw away garbage, bringing serious pollution to the environment of Taishan. One of the main environmental problems facing the Taishan scenic area is the increase in solid waste. This not only affects the aesthetics of the scenic area, but also has an irreversible impact on the ecosystem. Excessive development and human activities in the early years also make the rare species in the Taishan area face existential threats and biodiversity gradually decreases.

3.2. Solution Measures

In order to protect the ecological environment of Taishan, we urgently need to take action to raise the environmental awareness of tourists and strengthen waste disposal and resource recycling to slow down the rate of ecological damage. Only by working together can Taishan, a world natural heritage, be effectively protected.

First of all, for key environmental protection areas, human activities should be strictly limited to ensure that the natural landscape and biodiversity are effectively protected; at the same time, tourists are encouraged to consciously abide by environmental protection regulations to reduce the damage to the scenic environment. For damaged ecosystems, it is necessary to implement ecological restoration projects and carry out key restoration, as well as to strengthen vegetation protection and soil quality enhancement in order to re-establish ecological balance. In addition, pollution prevention and control of solid waste should be strengthened, waste classification and recycling efforts should be stepped up, more treatment facilities should be constructed, and waste resource utilization should be promoted to reduce environmental pollution. According to relevant studies, scenic areas usually adopt manual operation methods such as "broom sweeping, manual picking and clip grasping" for domestic garbage collection, and the conventional collection and transportation modes generally adopt mixed garbage collection or only resource utilization by sorting out recyclable garbage such as metal, glass, plastic and paper. In contrast to the city, the collection and transportation of domestic garbage in scenic areas is basically completed by manpower. Since in-situ disposal of garbage in scenic areas is harmful to the environment, most of the garbage disposal is carried out by centralized outward transportation, except for some scenic areas that choose in-situ incineration[4].

For local rare species and ecosystems, it is necessary to establish a sound protection mechanism and formulate specialized protection plans and measures to ensure that biodiversity is effectively protected. As well as conducting biodiversity monitoring and scientific research, identifying animal habitat sources, and utilizing indicator and focal species for biodiversity conservation is an internationally accepted and proven method[5][8]. Strengthening the monitoring and research of biodiversity in the Taishan region provides a scientific basis for conservation. At the same time, government departments should also

strengthen supervision and law enforcement, strictly implement environmental protection laws and regulations, and increase the crackdown on environmental violations to protect the ecological environment safety in Taishan region.

At the same time, it is necessary to formulate and improve relevant environmental protection laws and regulations, clarify environmental protection responsibilities and obligations, and strengthen the implementation of environmental protection policies. In addition, we can take advantage of international forces to strengthen cooperation with international environmental organizations and relevant countries to jointly protect the ecological environment of Taishan, carry out technical cooperation and exchange of environmental protection, and jointly respond to global environmental challenges. In conclusion, protecting the ecological environment of Taishan region is the responsibility of the whole society. Only through the joint efforts of the government, enterprises, all sectors of society and individuals can the goal of ecological environment protection in the Taishan region be realized. It is hoped that through the joint efforts of everyone, Taishan, a world natural and cultural heritage, can be better protected and inherited.

3.3. Status of Vegetation Cover

The research images used in this paper were obtained from the Geospatial Data Cloud website (<http://www.gscloud.cn>). The vegetation cover of Taishan area shows a decreasing change from the northwest to the middle and south, and the vegetation cover of the rural area is better than that of the central city, taking 2008 as the boundary, the vegetation cover of the main city was decreasing before 2008, and with the vigorous development of forestry by Taian Municipal Government in 2008, the vegetation cover gradually increased. Along with the increase of elevation, the vegetation cover area showed an inverted "U" shape change of increasing and then decreasing, and the vegetation was mostly gathered in the range of 100-500 m elevation. Both the area covered by vegetation and the degree of vegetation cover satisfy the characteristic that sunny slopes are greater than shady slopes are greater than flat land, i.e., the stronger the place irradiated by the sun, the more luxuriant the growth of plants is characterized, and when the slope degree is 0-5°, it is most favorable to the growth of plants, with the largest proportion of the area covered by vegetation [9].

3.4. Cultural Relics and Monuments

Taishan has more than 50 ancient buildings, nearly 1600 monuments and stone carvings (Tong), all of which are encompassed by the Taishan World Cultural Heritage and national key cultural relics protection units. The main risks are, fires in ancient buildings, weathering of stone carvings and rock collapses, theft and destruction of cultural relics. As most of the ancient buildings in Taishan are wooden structures with low fire resistance level, and partly surrounded by stores due to the development of tertiary industry, there are many fire risk factors. At the same time, Taishan ancient buildings are mostly in the mountains, very vulnerable to lightning strikes. Mountain power lines and facilities and equipment, every year there will be lightning strikes. The number of stone carvings and stone buildings on Taishan Mountain is large, high level and widely distributed, making it difficult to protect them, and there are many risks such as theft of topography, burglary, weathering, etc. [10]. For the cultural relics on Taishan, especially the ancient cultural relics such as stone monuments and stone carvings, the importance of protection is self-evident.

For the above problems, the relevant departments can set up special protected areas and install monitoring systems for real-time monitoring to prevent the occurrence of vandalism and theft. Meanwhile, regular maintenance and restoration work should be carried out on cultural relics, including cleaning up surface dust, filling cracks and reinforcing structures to ensure that they remain intact. In addition, an excessive number of tourists can also cause a certain degree of damage to stone monuments and carvings, etc. Therefore, tourists can be guided and managed

to control the flow of tourists, avoiding the concentration of a large number of people around the cultural relics, and reducing man-made damage. Science and technology can also be utilized to explore new techniques and methods of cultural relics protection, such as digital protection technology and the application of material science, in order to provide more scientific and effective means for the protection of these relics. The protection work requires the joint efforts of government departments, professional organizations and all sectors of the society to adopt various means and measures to protect these valuable historical and cultural heritages.

4. Suggestions for Future Environmental Protection in Taishan

As a natural and cultural heritage of China, environmental protection in the Taishan region is of paramount importance. Ecological protection and restoration is a top priority, strengthening vegetation restoration, soil protection and water resource management to re-establish the ecological balance and improve the ecological quality of the scenic area. At the same time, solid waste management needs to be strengthened and a sound system of garbage classification and recycling needs to be established. Strengthen environmental protection publicity and education, raise the environmental awareness of tourists and residents, and reduce garbage pollution. Actively promote the resourceful use of garbage to realize the recycling of resources and reduce environmental pollution. Only through the joint efforts of the whole society can we ensure the sustainable and healthy development of the ecological environment in the Taishan region.

Promoting the green development of Taishan region, promoting the development of eco-tourism, and realizing the win-win situation of economic and ecological benefits is an important task nowadays. Science and technology innovation plays a crucial role in this process, promoting the application of green technology in energy, transportation and other fields to reduce the negative impact on the environment. In order to achieve sustainable economic and social development, the sustainable use and recycling of resources is particularly crucial. At the same time, strengthening social participation and public education is equally indispensable. The whole society should form a favorable atmosphere of common concern and participation. Through extensive environmental protection publicity and environmental education courses, public awareness of and participation in environmental protection should be raised, and the public should be guided to cherish natural resources and cultural heritage. The role of government departments is also particularly important, and they need to strengthen the management and supervision of environmental protection in the Taishan region, formulate and strictly enforce relevant laws and regulations, and ensure the effective implementation of environmental protection measures. In addition to the above measures, the government can promote the wide application of scientific and technological innovations in the field of environmental protection with the help of modern technological means such as "Internet +", such as artificial intelligence, big data, GIS and other technologies can be used for environmental monitoring, resource management, emergency response and other aspects. Through the use of intelligent management systems, accurate monitoring and intelligent control of the environment in the Taishan region can be realized, thus improving the efficiency and level of environmental protection. In addition, establishing an ecological compensation mechanism is also a feasible program. The ecological value of the Taishan region is reasonably assessed, and residents and enterprises are encouraged to participate in ecological protection. Through ecological compensation, the environmental protection enthusiasm of all sectors of society can be stimulated, and the goal of the whole society to jointly protect the ecological environment of the Taishan region can be reached. With the joint efforts of all parties, the green development and ecological protection of the Taishan region will certainly make breakthrough progress.

Strengthen the protection and inheritance of cultural heritage in the Taishan region, repair ancient buildings, stone carvings, monuments and other cultural relics, establish digital archives, and promote the digital protection and inheritance of cultural heritage. At the same time, cultural heritage education and research will be carried out to pass on the rich history and culture of the Taishan region and to cultivate awareness and responsibility for the protection of cultural heritage. Encourage the general public to actively participate in the environmental protection of the Taishan region, organize and carry out environmental protection volunteer activities, such as tree planting, river cleaning and garbage sorting, etc., so as to enhance the public's awareness of the main body of participation and sense of responsibility. At the same time, a Taishan environmental protection volunteer service system is established to give full play to the positive role of volunteers in environmental protection work, and to promote the joint participation of all sectors of society in the cause of environmental protection. At the same time, the publicity and promotion work is strengthened, and through various forms of media publicity, the visibility and influence of environmental protection in Taishan region is improved, so as to guide the public to pay attention to and support the cause of environmental protection in Taishan region.

5. Research Conclusion

This paper briefly analyzes the environmental status quo of Taishan Scenic Area, briefly analyzes the existing environmental problems and cultural relics protection problems, and puts forward corresponding suggestions to solve the problems; on the whole, the vegetation coverage rate of Taishan has increased, which is a good trend in improving the environmental problems; and at the same time, it puts forward the problem solving methods to the government, environmental protection department, and cultural relics protection department in order to promote the Taishan The improvement and enhancement of the ecological environment of the region, as well as reducing the degree of damage to cultural relics and historical sites. Improvement and upgrading of the ecological environment of Taishan region and reduction of the damage to cultural relics and historical sites.

References

- [1] Yue, J., Lu, J., Fan, L., et al. (2022) Research on ecological sensitivity evaluation and protection of Taishan Scenic Spot based on GIS. *Jiangxi Science*, 2:117-124.
- [2] Xiao, J., Shen, S., Liao, Q., et al. (2010) Ecological sensitivity study of Qingxiu Mountain based on ARCGIS. *Journal of Central South Forestry University of Science and Technology*, 30(7): 19-25.
- [3] Han, B., Wang, P., Ke, C., et al. (2016) Hydration behavior of spinel containing high alumina cement from high titania blast furnace slag. *Cement and Concrete Research*, 79: 257-264.
- [4] Zhong, Z. (2010) Resource development and environmental management of Huangshan Scenic Tourism Area. *Journal of Huaibei Vocational and Technical College*, 4:36-37.
- [5] Caro, T. (2000) Focal species. *Conserv Biol*, 14(6):1569-1570.
- [6] Opdam, P., Verboom, J., Pouwels, R. (2003) Landscape cohesion: an index for the conservation potential of landscapes for biodiversity. *Landsc Ecol*, 18(2):113-126.
- [7] Bbooks, T., Kennedy, E. (2004) Conservation biology: biodiversity barometers. *Nature*, 431(7012): 1046-1047.
- [8] Lambeck, R.J. (1997) Focal species: a multi species umbrella for nature conservation. *Conserv Biol*, 11(4): 849-856.
- [9] Cui, Z., Tian, L. (2021) Analysis of vegetation cover changes and topographic factors in Taishan area in the last thirty years. *Beijing Survey and Mapping*, 35(6): 754-758.

- [10] Wu, Y. (2017) Taishan Scenic and Historic Spot Management Committee. Constructing a monitoring and early warning system for Taishan World Cultural Heritage Site based on high-tech means. *Chinese Literary Artist*, 10:233-243.