Research on the Planning of Mountain Type Lodging in Forest Recreation Industry Based on ArcGis Technology--The Example of Forest Recreation Base in Gaoping City Praying Mountain Resort

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Abstract. The advent of the post-industrial era has caused a specific degree of damage to both the habitat and the natural environment. Forest recreation has become an emerging mode of health tourism for people in China. B&B is an important part of forest recreation planning. In this paper, we use ArcGis software to quantify the elevation and slope of the forest recreation base in Gaoping City, Shanxi Province, and provide some data and support for the construction of mountain-type B&B in forest recreation base.

1. Background

Environmental issues have received widespread attention worldwide in the age of industrialization. While our economy is developing at a rapid pace, people are constantly seeking a healthier mode of living.

In recent years, China's forest recreation industry has developed rapidly. Forest recreation is a new type of industry integrating forestry, culture, tourism and leisure, sports and fitness, medical rehabilitation, etc. It helps to enhance the multiple functions of forests, stimulate forestry productivity, accelerate the transformation and upgrading of forestry, and is a new trend in sustainable forestry development. According to the different needs and motivations of tourists, forest recreation products can be divided into the following three categories: first, in-depth experience, mainly based on entertainment, including camping, forest adventure, forest music, forest study, etc.; second, physical fitness, mainly based on sports, including forest walks, forest bathing, forest yoga, forest Tai Chi, etc.; third, recuperation and vacation, mainly based on health, including recuperation characteristics of accommodation, forest food therapy, forest medicine, forest health. Forest food therapy, forest medicine, aroma therapy, etc.

Recreational specialty lodging is the largest share of the forest recreation industry[1]. As shown in Table.1, among the 80 forest recreation bases surveyed, the average proportion of recreation characteristic lodging accounts for more than 75% of the overall forest recreation products. In this paper, we will take the forest recreation base in Gaoping City, Shanxi Province, Praying Mountain Resort as an example to study the planning and design of recreation characteristic B&B in it, and seek to make certain guidance and suggestions for the construction of mountain-type B&B in forest recreation bases in the future.
2. Analysis of the construction of mountain-type B&B in forest recreation bases

2.1 Construction planning analysis

The garden is the most beautiful of the mountains and forests, with high and concave, curved and deep (Ming Dynasty - Ji Cheng). So it is even more so for the B&Bs built in this base, where the B&Bs are built on the mountains, high enough to be seen from afar, low enough to be secluded, winter enough to keep out the cold, and summer enough to be cool. In the mountain type of B&B construction need to fully consider the experience of tourists and users, while taking into account the local humanities, natural landscape, ecology and natural resources [2]. The forest and woods in the forest recreation base of Praying Villa are luxuriant, the terrain is high and low, and the natural conditions are excellent for the construction of B&B. Next I will analyze the B&B construction area in terms of both elevation and slope.

2.1.1 Elevation analysis. In the process of planning a mountain type B&B, the location of the B&B should not be too high or too low. As a long-term residence used by visitors, B&Bs must take full account of the effects of altitude on the human body during the planning and design process. The location of the B&B should not be too low. If the elevation of the B&B is too low, it will not be able to take full advantage of the mountain conditions, which not only affects the visitors' experience in terms of viewing, but also fails to achieve the purpose of rational use of mountain resources.

![Elevation analysis of forest health base in Qifu Villa](source: author's own drawing)

In order to judge whether the B&B construction area in the base is suitable for the construction of B&B, we analyzed the construction area by ArcGis software. Figure 1 shows that the elevation of the construction area is around 880m-910m, which is very suitable for the construction of B&B buildings, not only providing a healthy living environment for visitors, but also providing people with an excellent viewpoint.

| Business Size       | Recreation and Wellness Specialty B&B |
|---------------------|----------------------------------------|
|                     | Number/pc Percentage/%                |
| large scale industry| 3                                      |
| Percentage/%        | 75                                     |
| Medium-sized        | 36                                     |
| enterprises         | 87.80                                  |
| number               | 18                                     |
| Percentage/%        | 66.67                                  |
| small business      | 3                                      |
| Percentage/%        | 60.00                                  |
| Microenterprise     | 60                                     |
| Percentage/%        | 77.92                                  |
| population (statistics) | 60                              |
| Percentage/%        | 77.92                                  |
2.1.2 Slope analysis. When building B&Bs in mountainous areas with complex terrain, the topography and landform should be fully considered and relatively flat plots of land should be selected as the construction area as far as possible. It is important to follow the principle of following nature and to reduce the damage to nature by filling and digging as little as possible. At the same time, it is necessary to adopt the planning means of decentralized layout, so as to reduce the building volume, reduce the fall inside the building\textsuperscript{[3]}, and can integrate the building with the surrounding environment well.

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{slope_analysis}
\caption{Slope analysis (source: author's own drawing)}
\end{figure}

From Figure 2, we can easily see that the slope of the B&B construction area is between 0.00° and 8.44°, and the terrain is relatively flat and suitable for the construction of B&B. The surrounding traffic is also relatively convenient and there are no cases of excessive slope.

3. Choice of building form
In the choice of building form of mountain type B&B, this paper uses the container type building form. Container building structure is more solid, and because of its own good waterproof and anti-corrosion, can effectively ensure the safety of the occupants\textsuperscript{[4]}. At the same time container building has a better environmental protection. First of all, the container building all the modular units are produced according to international standardization, in the assembly and installation is more convenient, can effectively shorten the construction cycle, reduce the pollution of the surrounding environment, belongs to the prefabricated buildings. Secondly, compared with traditional buildings, container buildings in the choice of materials mainly steel and wood panels, in the end of its materials can be effectively recycled, reducing the carbon footprint, belongs to the environmental protection building form. At present, the container building has been in the residential, commercial, hotel, catering, leisure, park facilities and many other areas are widely adopted and implemented.

4. Planning and design of mountain type B&B
As shown in Figure 3, the design site is easily accessible, adjacent to the eastern mountains and built on a hill.
The outdoor courtyard of a mountain type B&B can expand the range of activities for visitors and promote human contact with nature. The outdoor courtyard area of a mountain-type B&B should not be too large due to the topography of the terrain. As shown in Figure 4, if the B&B is built in the middle, the outdoor open space can be relatively concentrated, facilitating greening and beautification. The courtyard can be planted with lawn and flowers, and make full use of the division and organization of trees, ponds, and stacked stones. Depending on the location, outdoor spaces and indoor spaces are connected to each other to form a unified whole.

As shown in Figure 5, the creation uses the container as the main unit prototype of this proposal, taking advantage of the container building to maximize the connection between the environmental landscape of the base and the organization of the building form\[^5\], creating a different experience for the user of the B&B space from the traditional concept, allowing the user to feel the characteristics of industrial construction and the characteristics of the times, but also to experience the traditional courtyard space in the creation of the building group. The building group is designed to provide users with the feeling of industrial construction and the characteristics of the times, but also the experience of traditional courtyard space in the building group.
5. Conclusion
In the planning and construction of the forest recreation base, the B&B industry is a top priority. In the past, the B&B construction lacked scientific analysis and often used the old houses in the village to be transformed. In this paper, through the use of ArcGis software, a full analysis of the B&B construction area in the forest recreation base of Praying Villa was carried out, and the results show that the B&B construction area relies on the eastern mountains, and after the analysis of the elevation and slope both show that the area is suitable for the construction of B&B. It is a good place to build houses because it can avoid the summer heat and keep warm in winter.

Acknowledgements
This paper was supported by Beijing Social Science Foundation (15GB055) and related horizontal projects, and completed under the guidance of Professor Yonggang An.

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