

LETTER TO THE EDITOR

Forest Park Ecological Landscape Restoration Methods and Evaluation of Ecological Tourism Resources

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This paper introduces the ecological landscape restoration methods of forest park, including clear thinking, overall planning, measures according to local conditions. In the process of ecological restoration is expounded to protect the forest stand structure of a single, ecological compensation mechanism is not sound, inadequate of forestry production, ignore the problem such as landscape benefit, and put forward the perfect structure, cultivating landscape forest trees, developing forest tourism economic entity, improve the supporting measures, strengthen publicity and education countermeasures. This paper puts forward a road suitable for the sustainable development of ecotourism in forest park in terms of the level and spatial layout of ecotourism development in forest park. In order to provide scientific and effective support for the planning, protection and management of the ecological landscape and ecotourism in the forest park.

forest park; ecological restoration; ecological protection; ecotourism; evaluation

1 Introduction

Ecological restoration is a comprehensive method of environmental pollution restoration based on bioremediation under the guidance of the principle of ecology, combining various physical restorations, chemical restoration and engineering technical measures to achieve the best effect and the lowest cost through the optimization combination. The successful implementation of ecological restoration requires the participation of ecology, physics, chemistry, botany, microbiology, molecular biology, cultivation and environmental engineering (Lin et al. 2017). The restoration and maintenance of damaged ecosystems involves various ecological theories such as ecological stability, ecological plasticity and steady state transformation.

Laichun Niu, Huizhu Ye, Lei Pang, Jiaqi Fan published an article titled "Ecological Environment Restoration of Roadside Vegetation in Expressway of Alpine Regions" in Ekoloji's 2019 Issue 107. The reference pointed out that with the rapid development of the economy, the highway construction in the high mountain areas has also flourished, but the environmental problems brought about by the highway construction have also emerged. There is still a long way to go to effectively restore the roadside vegetation environment. Therefore, this paper studied the ecological environment restoration of vegetation along the expressway in the alpine region. According to the current situation of vegetation ecosystem along the expressway in the high mountain area, the composition and characteristics of the vegetation ecosystem along the expressway were discussed, and the principles of integrity,

optimization and sustainable development of the vegetation ecosystem restoration along the highway were further discussed. On this basis, the scope of the whole vegetation ecosystem was divided into detail, and the differences of vegetation ecological environment in different high mountain areas were analyzed. (Chigani et al., 2017) Finally, according to the obtained important value, species diversity and spatial distribution pattern, different sand fixation and slope protection technology, the appropriate vegetation type and artificial wetland design were selected to restore the vegetation ecological environment of the alpine expressway. The results show that this restoration method has better restoration performance of vegetation ecological environment, and can greatly improve the greening effect, vegetation diversity, sand control and sand fixation effect of vegetation ecological environment in alpine area.

Therefore, on the basis of this literature, this paper studies the restoration methods of forest park ecological landscape and the evaluation and prevention of forest park ecological tourism resources, so as to better plan, protect and manage the ecological landscape of forest park.

2 Forest park ecological landscape restoration method

(1) Clear thinking

Based on the field investigation, a new idea of ecological restoration is established, which takes the construction of forest parks and the development of forest tourism as the main line, forest tending and comprehensive utilization as the means, and diversified development according to local conditions.

(2) The overall planning

Following the concept of "appropriate to build is to build, appropriate to seal is to seal, appropriate to change is to change, appropriate to fondle is to fondle, appropriate to fill is to fill, appropriate to plant is to plant, appropriate to raise is to raise", the forest road as a link, comprehensive design, comprehensive planning, with an overall view in space, in line with the actual design, to achieve the comprehensive use of resources, comprehensive optimization, scientific allocation (Liu SR and Sun HY 2019).

(3) Suit one's measures to local conditions

According to the forest park, park the existing situations of forest land, forest resources, and actively explore the different forest category and tree species, the best way to nurture and intensity of different forest age, implement "artificial larch Lin Jin natural operation mode", "artificial pinus tabulaeformis pure Lin Jin natural transformation model", "Lin inferior quality and low to the high quality of near natural conversion model", "artificial stimulating natural regeneration replanting encryption mode", "biodiversity and regenerative repair mode", "scenic artificial stimulating natural optimization model" six kinds of patterns. According to these six modes, different technical measures and investment standards are adopted for detailed management, so that the combination of tending and landscaping, combination of tending and seedling transplanting, and maximizing the ecological benefits of forests.

3 Problems existing in the process of forest park ecological restoration and protection

(1) The stand structure was single, the species were mixed irregularly, and the structure of canopy and different age had not been formed. In the artificial forest, the proportion of artificial pure forest is large, the stand is single, the biodiversity is poor, the system defense ability is weak, and diseases and insects are extremely easy to spread. Especially the pure forest of needles, because it does not mix with fire-breathing species, concentrated contiguous, increasing the difficulty of forest fire prevention (Geng et al. 2017).

(2) Ecological protection compensation mechanism is not sound. Forest park provides social public products such as water conservation, water and soil conservation, environmental protection, air purification, forest ecological tourism landscape, etc., which can be Shared by the whole community. Therefore, it should get social feedback and government compensation. However, the current forest ecological benefit compensation area is too small and the

investment is insufficient to meet the needs of public welfare forest construction.

(3) Insufficient investment in forestry production. The construction of forest park covers artificial afforestation, mountain closure for afforestation, passage greening, forest vegetation restoration, etc. However, in recent years, social prices and labor costs have risen sharply, leading to a lack of funds, project implementation difficulties, and it is difficult to ensure the quality of afforestation projects.

(4) Ignoring the landscape benefits. For example, the value of a deformed, dry, curved landscape tree in a forest park is several times higher than the normal target tree that is straight through a tree trunk. However, landscape trees with poor dry shape and ornamental value in tending are often cut.

4 Forest park ecological landscape restoration proposal

(1) Improve the forest structure. According to the forest species, tree species and site conditions, the composition, spatial distribution and age of tree species were adjusted through the combination of growth cutting, replanting, building broad-leaved trees and artificial promotion of natural regeneration, so as to realize the positive succession of stand structure. The target forest facies of multiple species mixing, upper, middle and lower canopy compound, young, middle, near and different age combination were cultivated to achieve the dynamic balance of forest biological community.

(2) Protect the original vegetation. In the forest park construction should be as far as possible not to undermine the original undergrowth, reduce the disturbance of soil, close to nature management theory as a guide, combining the theory of water balance and forest succession, by interfering with wood cutting, pruning branches, the tree plate repair, organic cover measures such as optimizing target tree water, soil, light and thermal environment, promote the growth and development.

(3) Cultivate landscape trees. There are many deformed and curved trees in the natural forest. These trees should be cultivated into landscape trees when the forest is tending, so as to give full play to their landscape benefits.

(4) Development of forest tourism economic entities. In recent years, people's spiritual and cultural needs, such as eco-tourism and leisure tourism, have gradually increased. In the process of developing forest tourism, we should adhere to the principles of policy guidance, government support, social financing, asset investment and cooperative management, and develop collectivization and three-dimensional development. Focus on the development and construction of forest park tourist attractions, investment attraction, joint development, and gradually form a forest tourism economic entity (Guan and Liang 2016).

(5) Improving various supporting measures. We should actively apply to the higher level for public welfare forest construction projects at all levels, increase the compensation for forest ecological benefits, improve the compensation standard, and expand the compensation area. For the projects of forest park infrastructure, forest fire prevention, disease and insect pest control, the finance departments at all levels should give priority arrangement and increase capital investment.

(5) Enhance publicity and education. Make full use of traditional media such as newspapers, magazines, TV and the Internet, mobile phone text messages, WeChat emerging media, such as spreading the rich connotation of forestry ecological and scientific knowledge, promote ecological protection to the positive role of human progress and social development, advocating positive ecological value and ecological aesthetics, to adapt to the need of tourism development and forest conservation.

5 Evaluation of ecotourism resources in forest park

According to the national standard of China Forest Park Landscape Resources Grade Evaluation, combined with the analytic hierarchy process to establish a comprehensive evaluation model of forest tourism ecotourism resources quality. Through the weighted calculation of the evaluation factor score value of the forest park

eco-tourism resources, the basic quality score value of the eco-tourism resources is obtained, and the score value of the eco-tourism resources quality is obtained by combining the score value of the combination of resources and the additional score value of characteristics. Among them, the ecotourism resources of forest parks are divided into five categories, namely, cultural resources, hydrological resources, biological resources, cultural resources and meteorological resources. The evaluation factors of ecological resources are: typical degree, natural degree, diversity degree, scientific degree, utilization degree, attraction degree, zone degree, rarity degree and combination degree. Different weights reflect the importance of such resources.

(1)The determination of index weight

The weight of evaluation factors reflects the relative importance of each evaluation index in the evaluation system and directly affects the rationality of evaluation results. (a) determine the relative importance of each factor through expert investigation, using 1-9 scale method for evaluation; (b) list the relative importance of each factor calibration value matrix; (c) calculate the weight value of each evaluation factor, using the sum method to calculate the weight; (d) the consistency test of the weight value of each evaluation factor.

(2)The quantification of evaluation index

(a)The score of evaluation factors was obtained: the score value of evaluation factors in each layer was calculated as a scale of 1-10 (with a score of 10 as a full score, the higher the score, the better the status of the index), and the questionnaire was made. According to the status quo of forest parks, the indicators of grassroots communities are graded according to the grading and quantification standards through on-site investigation, visit, questionnaire survey and reference to relevant materials.

(b)Determination of comprehensive evaluation value of resources: weighted comprehensive index method is adopted. The basic model is as follows:

$$E = \sum_{i=1}^n Q_i P_i \quad (1)$$

Among them, E is the comprehensive evaluation value of ecotourism resources, Q_i is the weight of the i th evaluation factor, P_i is the average score of the i th evaluation factor, and n is the number of evaluation factors. The weighted value and score of each evaluation factor were substituted into the above mathematical model, and the comprehensive evaluation value of forest park eco-tourism resources was finally obtained. The full score of the comprehensive evaluation is 10 points. The higher the score is, the better the comprehensive level of park eco-tourism resources will be.

Figure 1 shows the evaluation index system of forest park eco-tourism resources. In conclusion, the construction of forest park ecological restoration and the proposed tourism resource evaluation method is completed to provide support for forest park ecological protection and management.

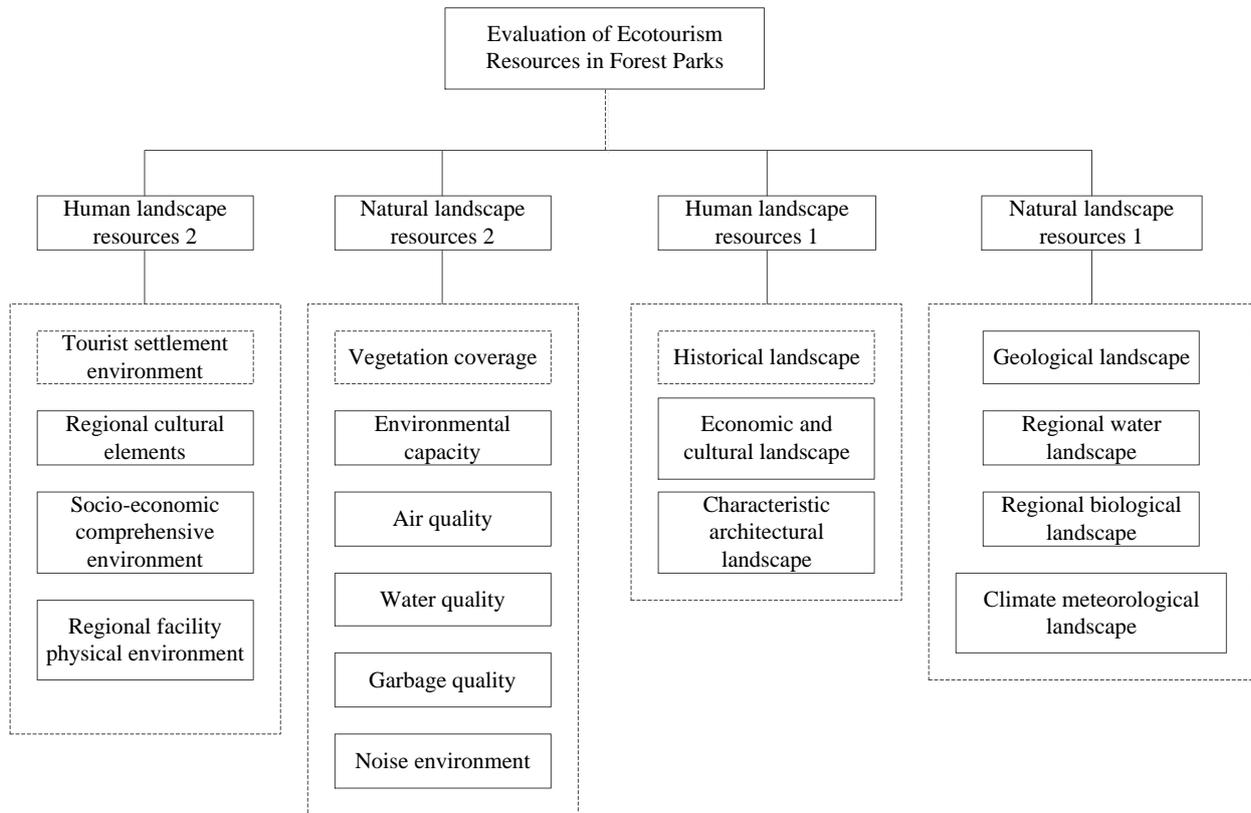


Fig.1 Evaluation index system of forest tourism ecotourism resources

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