Study on Ecotourism Resources of Labagoumen Nature Reserve in Beijing

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Abstract: with increasing quantity of nature reserves in our country, the forest ecotourism also begins booming continuously in recent years as green low-carbon tourism. In order to keep the hot ecotourism of nature reserve developing healthily and initiate the protective development, this paper introduces a reasonable and practical method of handling the confliction between conservation and utilization, that is, key districts of Labagoumen Nature Reserve in Beijing are selected and identified through GIS technology, and then divided into four areas on the base of eco-adaptability evaluation, including the strictly protected area, ecological cultivation area, tourist area and ecotourism service area, of which will be utilized for recreation according to their different sensitivity. This research method has certain referential significance on guiding the reasonable development and utilization of other tourist attraction.

Keywords: ecotourism resource, districting, utilization, nature reserve, Labagoumen in Beijing

1 Introduction
The global warming is causing obvious influence to our country; especially with opening of Copenhagen Summit, the urgency for developing low-carbon economy brought a new subject and challenge to the development of tourism industry. Recently, it is pointed in Opinions on Accelerating the Development of Tourism Industry issued by the State Council that, tourism industry doubles as the economic and social function with lower resource consumption, larger industry-led coefficient and more job opportunities as well as good comprehensive benefits; it also pointed that it has profound significance to cultivate the tourism industry into a strategic pillar industry and modern service industry of which people are more satisfied (http://www.cnta.com/). Therefore tourism industry shall aim to develop low-carbon economy in advance. As low-carbon tourism, ecotourism has become one of the emerging industries with the fastest growth in present world. With increasing quantity of nature reserves in our country, the forest ecotourism also begins booming continuously in recent years as green low-carbon tourism.

The theme through the history of protected area in early-stage was to stress harmonious relationship between human and nature, so the developing course of nature reserve was just a history of ecotourism resource utilization. Up to the end of 2007, the quantity of nature reserves in our country have reached to 2531 with total area of 151881.8 Kha., which makes up 15 percent of national territory (from official website of National Tourism Administration). With increasing quantity of nature reserves in our country, the original thought which only stressed on protection of protected areas is giving way to the protective utilization, and the priority of research is also changing accordingly. At present, the researches on ecotourism resource of nature reserves in our country mainly focus on the theoretical methods of developing and designing regional ecotourism destination, so the districted utilization of protected areas is becoming a hot research subject of which target is emphasized on the harmonious relationship between protection and utilization. Based on the exploration of above matters, this paper is expected to
provide the basis for reasonable development and utilization of ecotourism resource in this distinctive region.

2 Sightseeing and recreation is an effective method of utilizing nature reserve resources

The protected areas are the greatest assets of human, all kinds of protected areas, including nature reserve, national park, and historical site, etc. provide not only natural products and services for human survival, but also infinite value of education, science, culture, recreation and spirit (Yan Nailing, etc. 2003). With increasing quantity of protected areas in the world, it is attracted a wide concerns all long on how to utilize nature reserve resources. Since Yellowstone National Park was formed in 1872, the management of the protected area has changed remarkably in aspect of idea and operation, its function has also turned the original isolated “nature islands for the world” into the model meeting people’s needs (IUCN, 1994). In addition, the basic principles of building national parks have been summarized by the National Parks and Conservation Association of USA from the management experiences of Yellowstone National Park, that is, each kind of park shall be divided into different areas according to the planning, such as public sitting area, natural area, area of remarkable natural beauty, natural area without artificial influence, as well as historical site and cultural relics (co-authored by Gorokhov and Lenz, translated by Li Zhiruo etc., 1992). Diamond has put forward a districted model of three-functional zone for nature reserve circle structure (including the core zone, buffer zone, and transition zone) in 1975, which continues to use up to now as the basic principles followed during design of the protected area. The year of 2002 was designated as the International Year of Ecotourism by U.N., and a lot of ecotourism seminars were held, which put forward the guide for planning and management of ecotourism destination. It pointed that, “a complete overall plan of tourism development zone shall include a green zone, pathway, footpath and public place, as well as definite criteria on allowable development density (or intensity) of residential area and business district; besides, sufficient budget cost shall be arranged to protect the popular sightseeing districts with tourism incomes for special protection” (Wood, 2002). Overview the whole development course of abroad nature reserve, there was a consistent idea since the beginning of nature reserve so far, which was stressed both protection and utilization at the same time, and now recreation has been the most extensive method of the protected area resource utilization. How to utilize ecotourism resources with consideration of reasonable protection meanwhile is still a hot research subject, the scientific districted utilization is also an accepted method to most of scholars; although Diamond has put forward a districted model of functional zone as the basic principles of protected area design up to now, due to the radiation effects of tourism, it is not scientific to just consider ecotourism in transition zone as absolute safe, thus the functional zones shall be divided scientifically according to actual conditions instead of applying it mechanically.

3 Research Methods

3.1 Data Acquisition

The followings have be collected, including the existing data and the history of forestry, agriculture, land utilization and society and economy in research area; data on forestry, agriculture, land utilization and relevant updated data, historical data on society and economy, as well as existing data about development in the research area and survey site of whole project; the topographic data including DEM, remote sensing satellite data and related research literatures; collect spatial data, attribute data and related thematic data, etc. such as DEM of research area, vegetation distributed data, current land utilization data, distributed data of protected data and relevant attribute data, etc.

3.2 Status Survey of Ecotourism Resources Utilization in Labagoumen

Applied the route survey with means of remote-sensing image judging system and portable positional system, a field survey has been conducted to Labagoumen Nature Reserve, including survey of the protected object, status survey of resource utilization in research area, and development status of ecotourism in research area, as well as interview with local community residents.

3.3 Data Analysis and Process
During the interior work, all the survey data have been input into computer and establish a database, and then the original data processed and converted it into a map by software of geospatial information system, thus the sensitive districts of the protected area could be determined and eco-adaptability analyzed on the basis of the generated map, the reasonable multiple functional zones for tourism could also be analyzed.

4 General Situation of Research Area

4.1 Functional zones
Founded in Dec 1999, Labagoumen Nature Reserve is a municipal nature reserve which mainly aimed to protect natural secondary forest; it is also one of the largest natural forests in Beijing with mainly protecting native Quercus mongolica and Juglans mandshurica forest. This Quercus mongolica has complete forest form and featured as native forest, which has been proposed as the first class protected plant in Beijing, as there is just unique forest with such extensive Quercus mongolica mature in Beijing. Clusters of Juglans mandshurica, second class national protected plant, are distributed on the gulch above altitude 1000m with scattering Juglans cathayensis in it; Juglans cathayensis is a special tree species in our country and also an important genetic germplasm resource. Total design area of Labagoumen Nature Reserve is 16 682.4 hm$^2$; and the areas of the core zone, buffer zone and transition zone are respectively 5 200.8 hm$^2$, 5 113.3 hm$^2$ and 6 368.3 hm$^2$; the forest area is 9,623.4 hm$^2$ in the protected area. (Cui Guofa, etc. 2000)

4.2 General Tourism Situations
Labagoumen Nature Reserve is located in the far north mountainous area within the Labagoumen Manchu Township, Huairou District, Beijing; it lies among Yanshan Mountain in the far north of the capital with layback transportation. As living in mountainous area, the local villagers are in status of relative poverty. Vegetation coverage rate is more than 90% in the protected area with playing an important role in keeping the ecological and environmental quality and water conservation, etc. so it becomes a natural ecological barrier to the Capital. According to the site survey, tourism industry in Labagoumen Nature Reserve was initiated since 1995, it was taken over by a company at the present stage after many setbacks, and now a certain performance has been achieved under joint management with the administration department of the protected area.

4.3 Problems Existed in Ecotourism Development
The problems are still existed in ecotourism resource of the protected area as following: the key Tanghe river channel and flood plain within the protected area are occupied by farmland; greenhouse vegetable and orchard, etc. so the river is not so continuously and the vegetation on both sides of banks are also much scattered; a highway is extended along the river, thus some sections of river close to highway are artificial hardened and nature ecological course of the river has been destroyed already; the residential area is distributed along the river so that all polluted water and wastes affected deeply river wetland. There is no natural path between scenery spots, if solidify some tourism routes, the natural ecological course will be damaged accordingly; the tourism route along Tanghe river to villages and scenic region is subject to vehicles exhaust and dust pollution; because both sides of tourism route is close to river, the disorder cultivated land and crops to dry affect the recreation environment; the existing tourism route is relative tedious, and scenic spots are lack of landscape connectivity. The mentioned above are important restrains in the ecotourism development of Labagoumen Nature Reserve.

5. Multiple-Districting Utilization

5.1 Principles and Criteria of Multiple-Districting
5.1.1 Principle
The critical core area shall be ensured against damage, the multiple-districting utilization plan could lower ecological risk or the influence to the sensitive area; with identified key district and divided the protection class for whole area, the ecotourism with larger influence could be kept away from the
sensitive zone so as to protect the core area well.

5.1.2 Criteria
(1) Multiple-districting is based on the identification of key districts and eco-adaptability analysis. Multiple-districting of Labagoumen Nature Reserve is based on the selection of key districts and evaluation of eco-adaptability, among of which the latter is results of combined action of natural environmental factors, ecological attribute factors and interference factors on the basis of ecological attribute of key districts (Shi Jinlian, 2007). The protected districts with different grades shall be determined in this area.

(2) It shall be divided according to the requirement of ecological system and eco-cultural resource protection. Labagoumen Nature Reserve is mainly to protect native Quercus mongolica and Juglans mandshurica forests, and has traditional Manchu culture; the protection grades could be classified reasonably only after the key protected objects are determined.

5.2 Multiple-Districting Utilization
Highlighted the protective utilization of ecotourism resource, this study classifies Labagoumen Nature Reserve into four grades according to the ecological sensitivity, including the top, higher, middle and lower. See Fig. 4-1. Four areas are determined accordingly, that is strictly protected area; ecological cultivation area; tourist area and ecotourism service area, among of which the former two belong to the lower-insensitive utilization area, and the later are high-intensive utilization area.

5.2.1 Strictly Protected Area

Figure 4-1  Ecological sensitivity of Labagoumen Nature Reserve
(1) For Scientific Research
The resources in this area are featured as high quality which concentrated the ecological system of temperate broadleaf deciduous forest with perfect native state reserved, as well as rare wild animals and plants. Due to good naturality, this part of forest has higher aesthetics quality; above all, it is very difficult to find the similar forest with good naturality around Beijing, so it shall be the resource type of which needs to protect strictly for the scientific research.

(2) Analysis of Visible Range, Overlook Sensitive Area
Analysis of visible range could be conducted to the strictly protected area of existing traffic network in Labagoumen Nature Reserve; some part of landscape may be seated within the normal visible range of tourist on the existing route, so as to be able to utilize the scenery in the strictly proceed area and enhance its availability.

5.2.2 Ecological Cultivation Area
(1) The top priority is to protect and restore it
Ecological cultivation area is a transition zone to the strictly protected area; it has higher resource quality and protection level; comparing with the strictly protected area, it is subject to more frequent disturbance from the adjacent residential area and roads, etc. so it is easy to be damaged, thus it has special significance to ecological protection. No large-scale artificial transform is permitted within this area, but ecological restoration could be conducted to the scenery in the area suffered severely artificial interference.

(2) For Appreciate Scientific Exploration Tourism
This area could be utilized for appreciate tourism, but more for multiple scientific researches and surveys, etc. for example, a special tourism route could be opened for scientific exploration.

5.2.3 Tourist Area
It is also called the intensive utilization area which is main utilization area of ecotourism resource in the protected area. The relevant external facilities and tourism items shall be provided in this area for convenience of all tourists, including recreation based on forest, and the experiencing items of Manchu eco-culture. In this area, the major management objective is to preserve the original landscape; the artificial transform, if any, shall be limited under lesser intensity and harmonized with characters of original landscape at the same time. This area could be set the restricted rest areas, movable toilets, garbage collection, and sign boards, such as route signs. No large-scale reception facilities could be built within it; garbage must be collected for centralized treatment instead of burying in place whenever in form of solid or liquid.

5.2.4 Ecotourism Service Area
(1) Tourist Centre
Tourist centre is built in the location of Labagoumen township government with using the existing facilities.

(2) Service Area
This area is used to provide services to tourists and implement the executive functions of the protected area. It mainly includes management zone of the protected area, such as administration offices, maintenance station and waste treatment facilities, etc. Due to poor ecological conditions and lower sensitivity, it is suitable to build service facilities in this area, mainly including Sunzhanzi village, Huying village, Maoshan village and Sidaoxue village; all these villages are seated in the protected area with remaining original style of forest village; so it shall be kept original Manchu customs and culture as possible and provide accommodation for small-scale tourists, so that tourists could experience the daily life of villagers; correspondently, the villagers could also directly joint to reception service and gain economic benefit, thus national culture could be preserved and inherited.

(3) Home Hotel
The villages beyond the protected area, such as Dongcha village, Zhongyushudian village and Xifuying village, etc., could provide life services to tourists, if necessary, and are allowed some appreciate terrain transforms, vegetation utilization, as well as building works.

6. Discussion and Conclusion
(1) Multiple-districting utilization is the footstone of the protective development. According to the districted result, the ecotourism resources with different sensitivities in the research area could be developed and utilized properly with emphasized protection, so as to embody ecotourism truly and coordinate the relationship between protection and development effectively.

(2) Analysis of visible range could utilize the scenic resources to great degree. The concept of visible sightseeing has been put forward to utilize the scenic resource in the protected area to great degree without destroyed the environment; at the same time, the position of tourism route could be determined by this methods.

(3) Multiple-districting system also brings a challenge to the management of the protected area Labagoumen Nature Reserve belongs to a category of forest ecological system; in this study, it has been divided into four grades on the base of eco-sensibility, namely the strictly protected area; ecological cultivation area; tourist area and ecotourism service area. Different sensitivity means the related degree of area utilization, thus for the strictly protected area as network distribution, its operation will face a challenge through this method which needs to conduct the further research.

(4) Though this research method is popularized in the practise in a broad view, its application shall also be adjusted according to the actual situations, for example, it is not constantly for ever to select the indicator system which could be flexibly determined on the basis of actual conditions in research area.

References


