ORIGINAL ARTICLE

The Research Regarding of Visitors' Perception of Animal Elements in Landscape Architecture

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Abstract

Based on the survey of East Lake Park, South Lake Park and Tian Waicun in Tai'an by questionnaire survey, on-the-spot investigation and in-depth interview, the paper analyzes the tendencies of visitors to the animal elements and animal landscape in landscape architecture from three terms: primary attributes, the cognition of animal elements and animal elements landscape preferences. We have drawn several conclusions: the landscapes of animal elements are in urgent demand by the public ; The animal elements having lovely image, auspicious meaning and local characteristics are the most popular application types of animal elements landscapes ; The most favorite types of animals and animal elements are: doves, cranes monkeys, pandas, butterflies, dragonflies, fold fish, dolphins, dragons and cartoon animals ; The popular landscaping techniques of animal elements are the methods of combining with plants, buildings and garden ornaments.

Key words : Landscape architecture, Animal elements, Visitors' perception, Questionnaire survey, Application forms

1. Introduction

"Landforms, plants, buildings, garden ornaments, roads and squares" have always been considered as the five elements of landscape gardening in our traditional landscape gardening theory. Rarely "animal" element is included in the landscape elements, and landscape animals are seldom mentioned in the history book regarding of Chinese landscape architecture. However, the animal element in the landscape architecture has a long history, going deep into the every period of landscape works. It can participate in landscape design together with other landscape elements or form graceful landscape alone.

Landscape animal is part of landscape components, and it plays a role that cannot be ignored in the creation of aesthetic taste and artistic conception in landscape architecture. In the book of *Chinese Landscape Architecture History* profess or Guo Fengping had given great attention to landscape animals. He affirmed the important status of the animal element and listed it as one of the elements of landscape design (Guo, 2004). The research related to the application of animal elements in Chinese landscape architecture can help to create a real landscape, which is vivid natural and recovering original simplicity. Different animal images have their different cultural connotations. Hence, in great

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measure landscape animals also increase the cultural atmosphere to Chinese landscape architecture (Zhou, 1990; Liu et al., 2011; Zhang, 2004; Guo et al., 2008).

When we want to create the attractive and unique animal elements landscape, understanding the demand of the public has great significance, as landscape architecture is to serve the public. This paper took three representative open parks in Tai'an city for example. Through questionnaire survey, on-the-spot investigation combined with in-depth interview and other methods, the paper analyzed the tendencies of visitors to the animal elements and animal landscape in landscape architecture from three terms: primary attributes of tourists, the cognition of animal elements and animal elements landscape preferences. We arranged and analyzed data after we had got a large amount of first-hand information, hoping to provide scientific basis for the planning of animal elements landscape in landscape architecture.

2. Materials and Methods

2.1. Materials

The investigation was conducted in East Lake Park, South Lake Park and Tian Waicun in Tai'an city during September, 2012.

Tai'an East Lake park, built in 2004, having a total area of nearly 100,000 square meters, located in the east of the old city center. The interconnecting between original East Lake park and Five Horse Lake, has provided many entertainment facilities to enrich the outdoor life of residents. The scenic areas adjacent to the residential area, have a lot of landscape essays, such as "Mountain and Flowing Water", "Spring Lake Plumbing", "Water Creek Bamboo Path", "Bloom Rhyme Flow" and so on.

Tai'an South Lake Park is the largest comprehensive park in the urban area, covering an area of 170,000 square meters, the integration of ecological, cultural

and recreational natures. The park is divided into six regions: the main entrance area, youth activity center, sightseeing district, children's activity area, forest area and water sports area. The main attractions are the "peace and prosperity", "good weather", "twelve lotus bridge", "wang yue pavilion", "the marble boat" and so on.

Tian Waicun located in the West Stream Valley and on the west side of the Public Bridge is the beginning point for mountain-climbing in the west road of Mountain Tai. It is not only the junction of mountain and city but also the meeting point of West Stream Road and visitors distribution center. The comprehensive management on Tian Waicun roads in 2000 and the building of square at that time made it became the important transport hub between scenic area and city.

2.2. Methods

2.2.1. Contents of Research

In this study, the questionnaire consisted of three sections: visitors' basic information (gender, age, level of education and profession), the cognition of animal elements and animal elements landscape preferences.

2.2.2. Methods of Research

In order to get more useful information, in this paper we used questionnaire survey as the main method of this research, combined with the method of on-the-spot investigation and in-depth interview. The questionnaire survey is widely used in sociology research. It is determined to be the most effective mode for the works which need a large number of data collection. The questionnaire contains several standardized and certain structure questions which is designed unified in advance. A higher response rate with more valid information was provided through the method of answering and returning questionnaire at once. We believe that the strengths of this

approach far outweigh the weaknesses particularly when testing the use of a questionnaire survey with a small sample size (Dai and Zhang, 2008).

A total of 300 questionnaire copies were distributed (half for weekdays and half for weekends) in September 2012. And the effective rate was 95%, for a total of 285 valid surveys were returned. We used Excel 2007 to handle the survey data statistics. In the process of questionnaire survey and on-the-spot investigation, the tourists who had the strong sense of participation were selected to have an in-depth interview. We listened to the comments and suggestions from the public directly through face-to-face exchanges.

3. Results and Discussion

3.1. Visitors' Basic Information

The questionnaire used four indicators (gender, age, profession and level of education) to reflect the basic information of participants, more details are shown in table 1.

In order to ensure the scientific and convenient effect of the research, we reference a large number of literatures from domestic and foreign. The age group of participants is divided into five sections: 18 years old and younger for the juvenile stage, 19~26 years old for youth stage, 27~45 years old for middle-aged stage, 45~55 years old for old stage, 56 years old and older for retired nursing stage.

The statistical results of the survey data show that gender composition of the investigated visitors is roughly 1:1. The age distribution of the people being investigated are mainly focused in the 19~26 age group (the proportion of it occupies up to 35.4%), followed by the 27~45 age group accounted for 34.1%. However, the participants of 56 years old or older have the smallest proportion, which is due to certain limitation, such as level of education, vision and other physical conditions. Hence, these factors make it difficult for elderly to participate in the questionnaire well. In terms of occupational composition, there are mainly students and staffs of enterprises, both accounting for 56.9% of the total. And also a variety of other different sectors are included in this questionnaire. In terms of the level of education, 79.3% of the total are the people having senior high school, vocational school, college and university level education. Overall, the samples extracted in this survey and the basic information of the participants are relatively abundant and representative in terms of gender, age, occupation and education level.

3.2. Cognitions of Animal Elements

Deeply loved by the public, animals are closely related to people's life. From the data obtained from the investigation, we can see that the percentage of visitors that stated they like animals is rather high, occupying up to 68.8%. 29.4% of the tourists love

Table 1. The basic information of visitors

Gender		Age				
male	female	≤18	19--26	27--45	46--55	≥56
50.5%	49.5%	9.5%	35.4%	34.1%	12.2%	8.8%

Profession						Level of Education			
Student	Staff of enterprises	Civil servant	Private owner	Retiree	Others	Junior high school or lower	Senior high school or vocational school	College and University	Master degree or above
30.2%	26.7%	5.9%	10.9%	8.8%	17.5%	13.7%	29.5%	49.8%	7.0%

animals in general, and only 1.8% of the tourists do not like animals. It is apparent that the vast majority of people like animals and the amount of people dislike animals are only a very small part of the population (Fig. 1).

In terms of understanding level of animal elements in landscape architecture, 49.1% of visitors said that they know the animal elements in general, 31.2% of tourists stated they don't know the animal elements well, however, the people knowing the animal elements much only account for only 2.5% (Fig. 2). This survey demonstrates that not only the landscape designer, but also the garden users pay less attention to the animal elements. Therefore most people do not know much about the animal elements in landscape architecture. Animal elements as one of the important landscape elements are not being taken seriously as plants, buildings, garden ornaments and other landscape elements. Therefore, it has great significance for the construction of animal elements landscape to increase

the animal elements propaganda and strengthen the awareness of animal elements.

The survey data show that 92.9% of the tourists considered it is necessary using animal elements in landscaping, well only 7.1% of the tourists did not think so. This result is closely related to the affection degree to animals, as almost all visitors disliking animals considered it is not necessary using animal elements in landscaping (Fig. 3). It can be seen that, the visitors are in urgent demand of animal elements landscape. The users' need is a strong basis for feasibility and necessity of use of animal elements landscaping in landscape architecture.

We can see from the figure 4, 36.8% of the tourists held that the animal elements landscapes in current gardens are not sufficient for us, and 45.6% of visitors thought that generally, however, only 15.8% and 1.1% of total said it is adequate or very adequate. This indicates that people are not satisfied with the animal elements landscapes both in quantity and
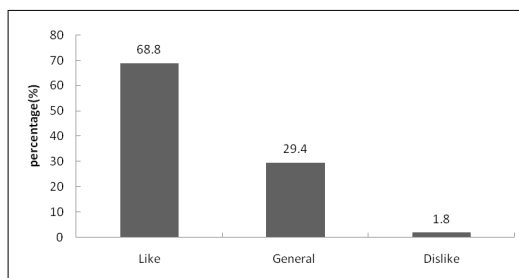

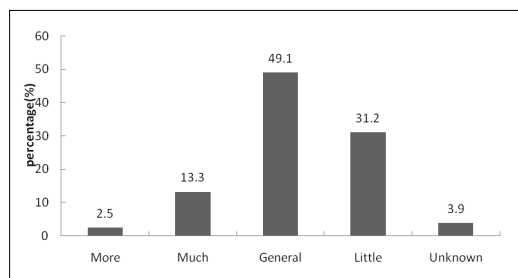**Fig. 1.** The affection degree of animals.

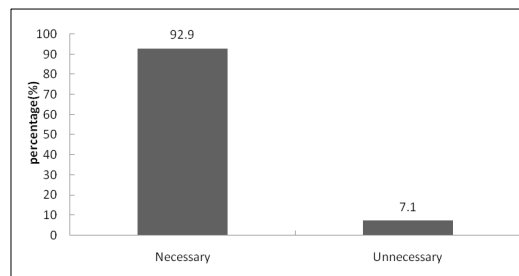**Fig. 2.** The understanding level of animal elements.

Fig. 3. The necessary of animal elements using in landscape design.
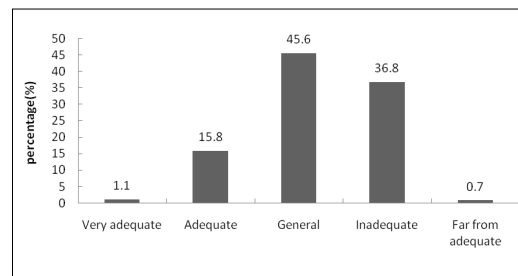

Fig. 4. The adequacy degree of animal elements landscape in landscape architecture.

quality. In other words, the animal elements landscapes in the garden cannot meet the needs of people. Hence, in order to meet the demands of people, there is still much room for development of perfecting and enriching the landscapes of animal elements in our landscape architecture.

3.3. Visitors' Preferences and Tendentious to Animal Elements Landscape

3.3.1. The Popular Types of Animal Elements Landscapes

As is shown in figure 5, the proportions of these three kinds of animal element landscape types: cute image, auspicious meaning and local characteristics didn't appear to be much different, respectively 26.7%, 28.4% and 27.1%. Among these four animal element landscape types, only the chirping took a very small proportion of 17.8%. Cute image, auspicious meaning of animal elements are important basis for selecting animal subjects since ancient times. And these types also express the master's good wishes and needs. Today, in global background, more and more urban gardens follow the "modernization" style blindly and identically. As a result, they gradually lose the original region characteristic which makes people pursue of landscape local characteristics intensely. Therefore, tourists' preferences and needs should be considered fully in the process of animal elements landscape design, and cute image, auspicious meaning and the characteristics of local animal
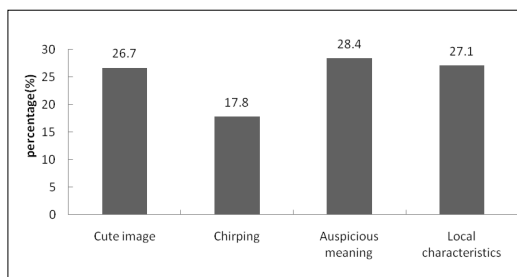
elements also need take more considerations.

3.3.2. The Popular Application Forms of Animal Elements

In terms of the popular forms of animal elements, the statistic results show that 62.8% of visitors choose the animal images and 37.2% of tourists choose intention animal elements (Fig. 6). Referring to the use of the text, poems and other methods to cause the imagination of animals in our minds, the intention animal element is the most common application form of animal elements in classical gardens. However, at present, few people know much about these.

3.3.3. The Popular Species of Animals and Animal Elements

In this paper, referring to a large number of references, in light of public daily habits rather than the taxonomy of animal of genus, species, department and division, the animals are roughly divided into five species: birds, mammals, insects, aquatic animals and virtual animals. Referring to references combined with on-the-spot investigation and the in-depth interview of garden professionals and non-professionals, several animals which are common and loved by people are selected in each species, written into the questionnaire to choose by participants.

Our survey reveals that the species of birds, pigeons and cranes are the most popular animals, and the proportion are respectively 30.5% and 23.5%,
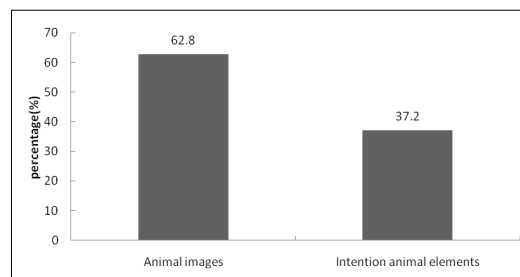
Fig. 5. The popular types of animal elements landscapes.

Fig. 6. The popular application forms of animal elements.

followed by 16.7% for the magpies. While the proportion of the two poultry animals-ducks and geese are the smallest of all (Fig. 7). In the species of mammals, the panda having the image of good-natured and lovely has the greatest percentage of 32.3%, followed by the monkey accounting for 22.1%. Nevertheless, the auspicious animal bat, a common animal element in classical gardens, accounts for only 3.7% (Fig. 8). In the species of insects, butterfly and dragonfly have the highest proportion, and cicada the most common animal in gardens in summer is only 6.2% of the total.

Therefore, we can see that the noise of cicadas in summer is too noisy for people to love it (Fig. 9). In the species of aquatic animals, goldfish accounts for 26.3% of all, dolphin for 23.7% and mandarin duck meaning for love for 19.3% (Fig. 10). In terms of the virtual animals, dragon, a symbol of the Chinese nation, has the highest proportion of 32.9%, followed by cartoon animal accounting for 24.1%, especially popular with children (Fig. 11).

As can be seen by the survey results, the species of animals and the animal elements people loved have a direct relationship with popular types of animal
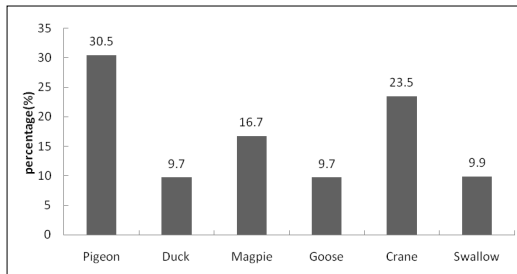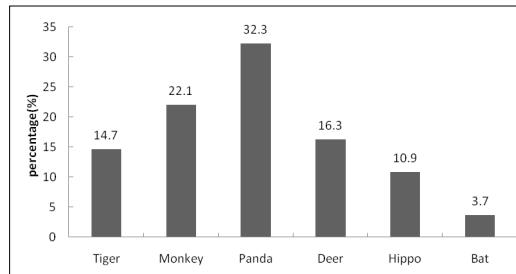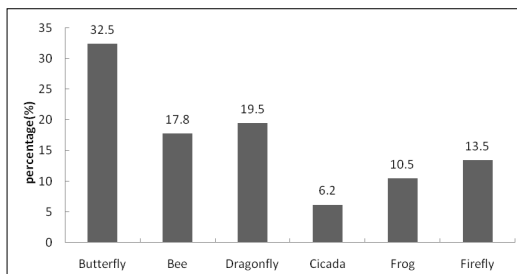

Fig. 7. Birds.

Fig. 8. Mammals.
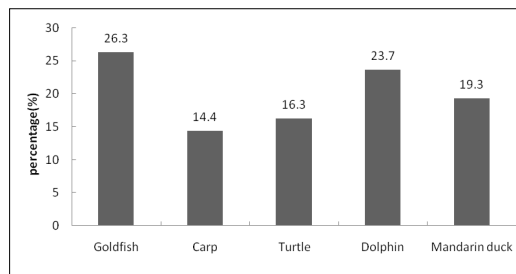

Fig. 9. Insects.
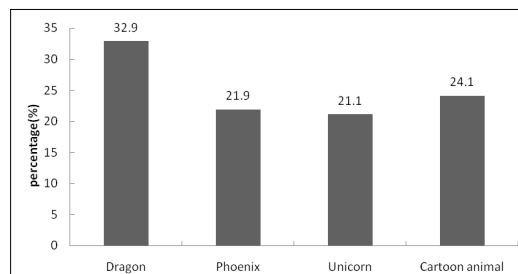

Fig. 10. Aquatic animals.

Fig. 11. Virtual animals.

elements landscapes. Pandas, doves, butterflies, dolphins and other animals that have lovely images are the most popular with people. However, auspicious animals common in classical gardens, such as bats rarely attract attentions from the public. This shows that people don't understand some animals cultural connotation well at present. So in order to draw the attention of visitors, we need to intensify propaganda consciously in the process of landscape design.

3.3.4. The Popular Landscaping Techniques of Animal Elements

As for the tourists' favorite landscaping techniques of animal elements, the survey results show that: in terms of the birds, the favorite landscaping technique is landscaping combined with plants, followed by that combined with buildings and water, respectively 20.7% and 19.3%. While, the landscaping methods of animal elements combining with roads and garden ornaments have the smallest proportion. In the aspect of the landscaping methods of mammal animal elements, the most popular landscaping method is combing with garden ornaments, a ratio of 41.1%. After that is the landscaping method connecting with plants, accounting for 31.2% of the total. The methods of the combination of animal elements with water and road have a smaller proportion. As for the

insect animal elements landscaping techniques, 44.9% of visitors selected the combination of landscaping with plants, followed by combining with garden ornaments, 19.3% of the total. The proportion of remaining three landscaping methods are relatively small, especially the method of combining with roads has the smallest proportion. In terms of the landscaping methods of aquatic animal elements, the majority of people believe the aquatic animal elements should be used for landscapes with water, with a high proportion of 85.6%. However, a smaller proportion is occupied for other four landscaping techniques, from which the method combining with roads only for 0.7%. The visitors' favorite landscaping method of virtual animal elements is using those elements together with buildings, accounting for 32.9%, followed by roads and garden ornaments, respectively 26.8% and 26.3%. While, the minimum proportion is 4.2% for the combination with water (Fig. 12).

The investigation results demonstrate that, generally speaking, the landscaping methods of animal elements combining with plants, building and garden ornaments are the most popular techniques. And the conjunction with road landscaping generally is not high popular. This revealed that, on the one hand, the plants, buildings and garden ornaments are the well-known
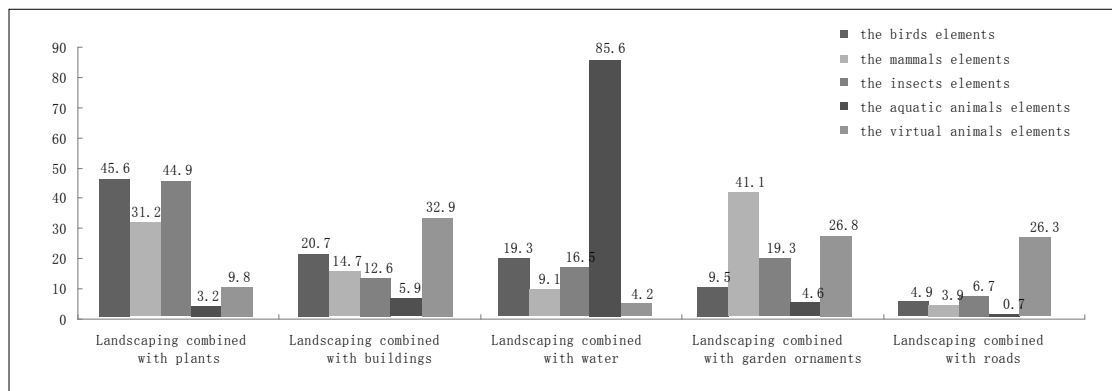

Fig. 12. The popular landscaping methods of animal elements.

and loved landscape elements in our landscape architecture, on the other hand, we can see from the in-depth interview with visitors that people don't know much about the animal elements landscaping with roads. In light of the high proportion of aquatic animal elements landscaping with water, it is hoped that the animal elements can keep the natural state in landscapes.

4. Conclusions

Combined with on-the-spot investigation and in-depth interview, the research regarding of the application awareness of animal elements in landscape architecture has been conducted. The visitors' perception of animal elements, the popular types of animal elements and the application forms of animal elements have been analyzed in this paper. We have drawn several conclusions as follows:

(1) A significant percentage of the people are not satisfied with animal element landscapes in our landscape architectures although most of them don't know much about the animal elements and animal-landscapes. At present, the landscapes of animal elements are in urgent demand by the public.

(2) The animal elements having lovely image, auspicious meaning and local characteristics are the most popular application types of animal element landscapes.

(3) The most favorite types of animals and animal elements are: doves, cranes monkeys, pandas, butterflies, dragonflies, fold fish, dolphins, dragons and cartoon animals.

(4) The popular landscaping techniques of animal elements are the methods of combining with plants, buildings and garden ornaments.

It is the significant invention and contribution to the culture of the human landscape by expressing the people's minds and pursuits through landscape animals in our classical gardens. It still has a valuable

reference to the planning and design of modern gardens. But now people lack of the knowledge of cultural connotations of the auspicious animal elements. The garden designers need to intensify propaganda consciously in the process of landscape design.

To develop the landscapes of pleasing and cultivating noble spirit is the pursuit of garden designers both at past and present. In addition, there is still much room for development of perfecting and enriching the landscapes of animal elements in our landscape architecture. Therefore, in order to enrich the landscapes, we should draw on the experience of the application techniques of animal elements scientifically, and advocate the use of animal elements in modern gardens actively.

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