

## Tourism Development Strategy of Ancient Trees Natural Heritage Resource Based on Landscape Aesthetic Evaluation

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### **Abstract:**

Ancient trees are not only precious cultural heritage, but also important component of landscape tourism resource for Rural Revitalization. The research on the aesthetic value of ancient trees resource landscape is to explore the aesthetic cognition of ancient trees landscape. The development and utilization of ancient trees landscape value is the strategy of tourism development. Through the study of ancient trees (ancient trees group) resource in the Wenzhou (a city in south China), the evaluation index system is constructed from the aesthetic elements of ancient trees landscape. Scenic Beauty Estimation Method (SBE) and Semantic Differential Method (SD) are used to evaluate the correlation of ancient trees landscape aesthetics in the region and the result are as the following. The crown fullness, spatial hierarchy and light sensitivity have great influence on the aesthetic value of ancient trees landscape. Crown plumpness, evenness of branches and leaves, softness of landscape texture, spatial hierarchy, light sensitivity and environmental harmony are positively correlated with the SBE value. Tree species with the highest value of ancient trees landscape are *Ficus* and *Liquidambar*, such as *F. concinna*, *F. microcarpa*, *L. formosana*. On the basis of comparing the aesthetic value, ecological value and tourism value of the ancient trees resource, it is considered that the dual benefits can be realized only by strengthening the protection and the effective development and utilization of the ancient trees resource and sustainable tourism development.

**Keywords:** Ancient trees heritage, Aesthetic evaluation, Protection and utilization, Tourism development, Wenzhou.

### I. INTRODUCTION

Ancient trees are "green living fossils" which can not be reproduced and renewable. They are important carriers for carrying forward and inheriting rural civilization, maintaining the original rural style and retaining nostalgia. The Central Committee of the Communist Party of China and the State Council Document No. 1 (2018) "Opinions on the Implementation of the Rural Revitalization Strategy" puts forward to continuously improve rural living environment, implement rural afforestation, and comprehensively protect ancient and famous trees. Ancient and famous trees are high-quality landscape resource in the construction of "National Forest City" and "National Garden City". However, with the concentrated development of cities, the contradiction between urban construction and the protection of ancient and famous trees is becoming increasingly obvious. The problem of "how to protect and how to use" also needs to be solved. Therefore, under this circumstances, the newly revised Zhejiang provincial measures for Ancient and Famous Trees Protection (2017) [2] and other relevant laws and regulations clarify the responsibilities and requirements of ancient trees protecting in the new period, laying a legal foundation for the protection of ancient trees. However, making effective use of ancient trees resource and giving full play to its greater social and economic benefit are worthy of in-depth research and discussion. As early as the 1960s and 1970s, western experts mainly from the United States carried out aesthetic and visual evaluation of small forest landscape [3]. In the field of forest landscape assessment, there are four schools of thought: expert school, psychophysical school, cognitive school and empirical school [4]. For example, Ali ozbolen [5] used SD method to study people's feelings on 10 kinds of space and 24 kinds of plants. Susanne Frank et al. [6] proposed the evaluation method of natural landscape diversity from the landscape scale, and studied the subjective preference of 153 testers for different landscape types based on landscape map, satellite map and land cover map. In recent years, a large number of domestic scholars have carried out researches on sustainable utilization of ancient trees landscape [7] and aesthetic evaluation of ancient trees landscape [8-10] by referring to forest landscape evaluation theory. It shows that the main factors affecting the aesthetic value of ancient trees landscape are ancient trees morphology, color richness, trees arrangement, sense of hierarchy, unity of branches and leaves, growth trend, seasonal change and other factors [9-11]. Because the beauty of ancient trees is multi-form, multi-component and multi-level, the aesthetic evaluation of ancient trees mainly depends on the subjective evaluation of the viewers, so it is difficult to establish a unified evaluation index system [11]. In the actual operation of landscape evaluation, Zube, Wang Xiaojun, Mao jiongwei and other scholars have proposed to adopt relatively strict and reliable psychophysical methods [12-14]. The most widely used psychophysical method is the scenic beauty evaluation method (SBE) proposed by American environmental psychologists Daniel and Boster in 1976 [15]. This method is time-saving and economical, and it is not affected by the evaluation criteria and score values. Different types of people have obvious consistency in landscape evaluation [16]. As a consequence, the beauty evaluation method (SBE) and feeling recording method (SD) are used to quantitatively evaluate the aesthetic value of ancient trees landscape in Wenzhou and the influencing factors of

aesthetic evaluation of ancient trees landscape resource are analyzed. It can be used to understand and master the development potential of ancient trees tourism resource in Wenzhou, which can provide better theoretical and practical basis for the management and rational utilization of ancient trees landscape resource.

Wenzhou is located in the south of Zhejiang Province, belonging to the mid subtropical monsoon climate area, with moderate temperature and abundant rainfall. The annual average precipitation is 1500-1800mm. Wenzhou, known as the city with "seven mountains, two rivers and one farmland", has varieties of soil types. The city has interlaced urban water network and a large number of ancient and famous trees. According to the survey, there are about 12795 ancient and famous trees in Wenzhou, including 8016 scattered ancient and famous trees and 4779 ancient trees, belonging to 162 species (including varieties and cultivated varieties) of 102 genera in 45 families. Ancient and famous trees are mostly distributed in Taishun County, Wencheng County, Yongjia County and other mountainous areas. The oldest ancient tree is located in C. camphora of jiangxinyu, Lucheng District, with a trees age of 1300 years. The number of L. formosana and Pinus massoniana are 3567 and 2049 respectively. There are many endangered and rare plants in Wenzhou ancient and famous trees. About 7.14% of them are national key protection wild plants, with a total of 913 plants, including 279 national first-class key protection plants and 634 national second-class protection wild plants.

## II. DATA ACQUISITION AND PROCESSING

### 2.1 Data Sources

The research data mainly come from field investigation and data collection. Among them, there are 518 first-class ancient and famous trees (over 500 years), 1723 second-class ancient and famous trees (300-500 years), 10554 ancient and famous trees (100-300 years). In this study, 100 kinds of ancient trees, selected by Wenzhou Municipal People's government, are selected to study, focusing on their landscape aesthetic value and influencing factors. It includes detailed investigation of each ancient tree, covering basic information (investigation number, Chinese name, Latin name, family, genus), morphological characteristics, growth environment, trees age, trees height, DBH, crown width. In order to determine the influencing factors of ancient trees landscape value in a better way, different photos are selected as the evaluation material, and every photo represents one certain landscape. According to different habitats, these landscapes can be divided into seven types: village courtyard, temple, park, roadside, waterside, farmland and hillside [18].

### 2.2 Data Analysis and Processing

#### 2.2.1 Aesthetic Evaluation of Ancient Trees Landscape based on SBE Method

##### (1) Analysis Method

Using the SBE method proposed by Daniel and Boster, referring to the practice of scholars in China and other countries [11-14], the random number of photos of research materials is made into a questionnaire, which is used as the analysis sample of feeling recording method.

Relying on the Internet platform "questionnaire star", a unified "standardized description" is made before the evaluation. 360 people with gender ratio and professional degree are selected and divided into three groups for evaluation. According to the cognition of the ancient trees landscape aesthetics, the evaluation objects are scored according to the 7-level preference index, that is, "very like, like, slightly like, general, slightly dislike, dislike, very dislike" and their corresponding score are "3, 2, 1, 0, -1, -2, -3".

## (2) Data Processing

After the survey, the background data is exported from the "questionnaire star" platform for standardized processing, so as to eliminate the gap between the samples, and obtain the revised landscape beauty evaluation value (SBE value), so that the distribution of SBE value is normal distribution. The calculation formula [14] is as the following:

$$MZ_i = \frac{1}{m-1} \sum_{k=2}^m f(1 - cp_{ik})$$

$$SBE_i = (MZ_i - BMMZ) \times 100$$

The connotation:  $MZ_i$  is the average normal distribution unilateral score  $Z$  of sample  $i$ ;  $cp_{ik}$  is the frequency that the evaluation value of sample  $i$  given by the tester is  $k$  or greater than  $k$ ;  $f$  is the frequency of normal function distribution of cumulative frequency;  $m$  is the grade number of evaluation value;  $SBE_i$  is the SBE value of sample  $i$ ;  $BMMZ$  is the average  $Z$  value of baseline group.

## 2.2.2 Decomposition of Aesthetic Value Factors of Ancient Trees Landscape based on SD Method

### (1) Analysis Method

Combined with the characteristics of ancient trees, the main factors affecting the landscape ecological aesthetics of ancient trees are determined, and expert consultation is conducted. The experts who have been consulted are senior professional personnel engaged in landscape plants, ornamental horticulture and landscape architecture, including 6 professors and 7 associate professors. According to the selection and evaluation of experts, the evaluation index system of landscape ecological aesthetics of ancient trees can be constructed from the four elements of morphological value, color and texture value, ecological value and environmental landscape value. It is divided into three levels. The first level is the target layer, that is, the landscape ecological aesthetic value of ancient trees (A); the second level is the constraint layer ( $B_i$ ); the third level is the factor layer ( $C_{ij}$ ), which are the specific indicators of the constraint layer [7] (TABLE I).

**TABLE I. Landscape aesthetic evaluation of ancient trees in Wenzhou**

Target layer	Constraint layer	Factor layer	Evaluation scale (score)
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Landscape ecological aesthetic value of ancient trees (a)	Form value (B1)	Beauty of trees (C11)	Beautiful (5) - not beautiful (1)
		Crown plumpness (C12)	Full (5) - sparse (1)
		Uniformity of branches and leaves (C13)	Neat (5) - messy (1)
		Singularity of branches and leaves (C14)	Strange (5) - ordinary (1)
	Color texture value (B2)	Color richness (C21)	Rich (5) - not rich (1)
		Seasonal variation (C22)	Obvious (5) - not obvious (1)
		Landscape texture softness (C23)	Soft (5) - rigid (1)
	Ecological value (B3)	trees age (C31)	Large (5) - small (1)
		trees height growth (C32)	Good (5) - poor (1)
	Environmental landscape value (B4)	Spatial hierarchy (C41)	Clear hierarchy (5) - fuzzy hierarchy (1)
		Line of sight width (C42)	Wide sight (5) - narrow sight (1)
		Light sensitivity (C43)	Bright (5) - Dark (1)
		Environmental harmony (c44)	Harmony (5) - disharmony (1)

## (2) Data processing

A total of 100 ancient trees photos evaluated by SBE method are selected as the analysis sample of feeling recording method, and 600 landscape students are selected as the subjects. According to the landscape aesthetics evaluation table, students' score each evaluation factor according to the "questionnaire star" network platform, and then carry out standardized data processing to calculate the average value and standard deviation as the SD method quantitative value.

### 2.2.3 Analysis on Aesthetic Value Factors of Ancient Trees Landscape in Wenzhou

Taking the scenic beauty degree of Wenzhou ancient trees photos as dependent variable, the quantitative value of each ancient trees landscape aesthetic evaluation factor is independent variable. Based on spss20.0, multi-factor regression analysis is carried out on the basis of single factor analysis, and the linear regression equation is obtained, and the correlation and importance of each factor in the ecological evaluation of ancient trees landscape is constructed.

(1) Pearson analysis is used in univariate analysis. The significance of hypothesis test is represented by P value. If  $P \leq 0.05$ , there is correlation between variables.

(2) Multivariate regression analysis eliminates the variables that are not significantly related, and the remaining variables with significant correlation are constructed by backward stepwise regression analysis to maximize the F value of the model. In the meanwhile, in order to reduce the interaction among independent variables, partial correlation coefficient is used to eliminate and adjust some variables, and the regression equation is established, and the significance test of the equation is carried out to ensure that the regression model can fit the

original data better.

### III.RESULTS AND ANALYSIS

#### 3.1 Analysis of Scenic Beauty (SBE Value) of Ancient Trees in Wenzhou

According to the result of the questionnaire (Table 2), sample plot 62 has the highest scenic beauty whose SBE value is 2.54. The sample plot is located in DaHuiling in Wencheng County, which is composed of 84 ancient trees with luxuriant branches and leaves, gorgeous colors and good population effect. Sample plot 8 has the lowest scenic beauty, and the SBE value is 0.32. The plot is located in front of the University for the aged in Jiaoxiangxiang, Lucheng District. It is a wild jujube tree surrounded by buildings. In terms of trees species, *F. virens* Ait. var. *sublanceolata* And *F. subpisocarpa*, *F. coninna* and *F. microcarpa* show the highest landscape beauty, and the average landscape beauty of *F. coninna* is 1.805. These trees species have large crown, thick shade, vigorous root system, showing strong vitality. *F. Microcarpa* is also the city tree of Wenzhou, which is consistent with the preferences of Wenzhou citizens. The second highest scenic beauty tree is *Liquidambar*, with a SBE value of 1.676. Most of them belong to group plants. The leaves turn red in autumn, which is particularly beautiful against the evergreen trees.

There are also great differences in the scenic beauty of ancient trees in different habitat types. It can be seen from Figure 1 that the average SBE values of various habitats from large to small are C (Park) > b (Temple) > e (waterfront) > G (hillside) > A (village courtyard) > F (field) > d (roadside). Habitat C (Park) has the highest average score of scenic beauty. These landscapes are generally located in scenic spots, nature reserves or urban parks. The ancient trees are well protected and have been developed and utilized as scenic spots. The second was habitat B (Temple) and habitat E (waterfront). The ancient trees beside the water have a wide living environment. They are tall and well protected, and fully integrate with the surrounding environment. The special architectural form and color of the temple, the unique reflection in the water body and the ancient trees complement each other. They are often endowed with cultural history such as allusions and myths, forming a special artistic conception. The worst scenic beauty is habitat D (roadside) and F (field side). The ancient trees along the road are affected by road construction and vehicle exhaust, most of the plants grow in general and the landscape effect is poor. At the same time, ancient trees are often planted in the field in isolation, and the surrounding environment is too open to effectively show the beauty of ancient trees. The above results are basically consistent with the selection results of "my favorite 100 ancient and famous trees in Wenzhou. It can be seen that people's aesthetic appreciation of ancient trees not only focus on the posture and growth of ancient trees, but also on the cultural heritage and the artistic conception created by the surrounding environment. Therefore, only by deeply excavating the natural and cultural resource around the ancient trees habitat can people better realize the development and utilization of ancient trees tourism resource and obtain greater tourism value.

**TABLE II. Evaluation results of scenic beauty (SBE value) of sample plots**

Sample plot	Latin name	habitat	SBE value	Sample plot	Latin name	habitat	SBE value
1	<i>Cinnamomumcamphora</i>	F	0.71	51	<i>Pinusmassoniana</i>	G	1.71
2	<i>F.concinna</i>	B	2.21	52	<i>C.camphora</i>	A	1.13
3	<i>F.concinna</i>	E	1.98	53	<i>F.concinna</i>	A	1.25
4	<i>Castanopsissclerophylla</i>	A	1.3	54	<i>Sabina chinensiscv.Kaizuc a</i>	A	1.27
5	<i>L.formosana</i>	E	1.12	55	<i>P.macrophyllus</i>	B	1.63
6	<i>Ginkgo biloba</i>	A	0.82	56	<i>G.biloba</i>	A	1.38
7	<i>F.microcarpa</i>	E	1.16	57	<i>M.thunbergii</i>	B	1.91
8	<i>Phoenix dactylifera</i>	D	0.32	58	<i>F.concinna</i>	F	1.2
9	<i>Phoenix dactylifera</i>	D	0.55	59	<i>F.concinna</i>	A	1.05
10	<i>C.camphora</i>	C	1.61	60	<i>Ilex chinensis</i>	G	2.25
11	<i>C.camphoraF.virensAit.v ar. sublaceolata</i>	C	1.34	61	<i>Celtissinensis</i>	G	1.38
12	<i>C.camphora</i>	D	1.36	62	<i>L.formosana</i>	G	2.54
13	<i>F.microcarpa</i>	A	1.63	63	<i>L.formosana</i>	G	2.29
14	<i>F.microcarpa</i>	C	2.23	64	<i>C.camphora</i>	A	2.02
15	<i>F.virensAit.var. sublaceolata</i>	E	2.05	65	<i>L.formosana</i>	E	1.96
16	<i>F.concinna</i>	E	2	66	<i>L.formosana</i>	G	1.8
17	<i>F.concinna</i>	E	1.61	67	<i>T.mairei M.thunbergii</i>	A	1.23
18	<i>Taxusmairei</i>	E	0.84	68	<i>Schimasuperba</i>	G	1.88
19	<i>Acer palmatum</i>	G	1.18	69	<i>G.biloba</i>	G	1.02
20	<i>Machilusthunbergii</i>	F	1.96	70	<i>F.microcarpa</i>	F	1.23
21	<i>Podocarpusmacrophyllus</i>	G	1.14	71	<i>F.microcarpa</i>	F	1.02
22	<i>Camellia longicaudata</i>	B	0.77	72	<i>O.fragrans</i>	A	0.73
23	<i>Celtissinensis</i>	G	1.89	73	<i>Cryptomeriafortune i</i>	G	1.25
24	<i>Myricarubra</i>	G	1.09	74	<i>P.macrophyllus</i>	G	1.21
25	<i>C . sclerophylla</i>	F	0.98	75	<i>C.camphora</i>	F	1.64
26	<i>T.mairei</i>	F	0.86	76	<i>F.concinna</i>	A	1.02
27	<i>F.concinna</i>	E	1.68	77	<i>F.concinna</i>	A	1.86
28	<i>F.concinna</i>	E	2.34	78	<i>F.concinna</i>	E	1.16
29	<i>L.formosana</i>	F	1.64	79	<i>F.concinna</i>	A	1.68



30	<i>C.camphora</i>	E	1.05	80	<i>F.concinna</i>	A	1.98
31	<i>C.camphora</i>	A	1.07	81	<i>L.formosana</i>	G	1.36
32	<i>Ficussubpisocarpa</i>	E	2	82	<i>F.concinna</i>	A	1.7
33	<i>Osmanthus fragrans</i>	C	1.66	83	<i>F.microcarpa</i>	G	1.61
34	<i>F.concinna</i>	E	2.13	84	<i>F.concinna</i>	A	1.98
35	<i>F.concinna</i>	E	1.73	85	<i>F.microcarpa</i>	A	1.84
36	<i>Podocarpusnagi</i>	F	1.43	86	<i>C.fortunei</i>	G	1.75
37	<i>Bischofiapolycarpa</i>	E	1.63	87	<i>P.macrophyllus</i>	D	1.21
38	<i>G.biloba</i>	E	1.41	88	<i>C.funnebris</i>	A	1.66
39	<i>F.concinna</i>	C	2.36	89	<i>T.mairei</i> <i>C.camphora</i>	F	1.2
40	<i>L.formosana</i>	E	1.23	90	<i>Loropetalumchinensis</i>	G	1.5
41	<i>F.concinna</i>	A	1.36	91	<i>C . sclerophylla</i>	G	1.71
42	<i>F.concinna</i>	A	1.04	92	<i>C.camphora</i>	E	1.96
43	<i>F.concinna</i>	A	1.14	93	<i>Pinusmassoniana</i>	D	1.63
44	<i>T.mairei</i>	A	1.5	94	<i>C.camphora</i>	A	1.79
45	<i>T.mairei</i>	A	1.34	95	<i>F.concinna</i>	G	1.64
46	<i>Cupressusfunnebris</i>	B	1.7	96	<i>F.concinna</i>	E	2
47	<i>C . sclerophylla</i>	A	2.2	97	<i>Ligustrumlucidum</i>	B	2.04
48	<i>G.biloba</i>	F	1.11	98	<i>L.formosana</i>	G	1.64
49	<i>C.camphora</i>	G	0.98	99	<i>F.concinnastay</i>	E	1.71
50	<i>Pinus taiwanensis</i>	G	0.93	100	<i>F.concinna</i>	E	1.98

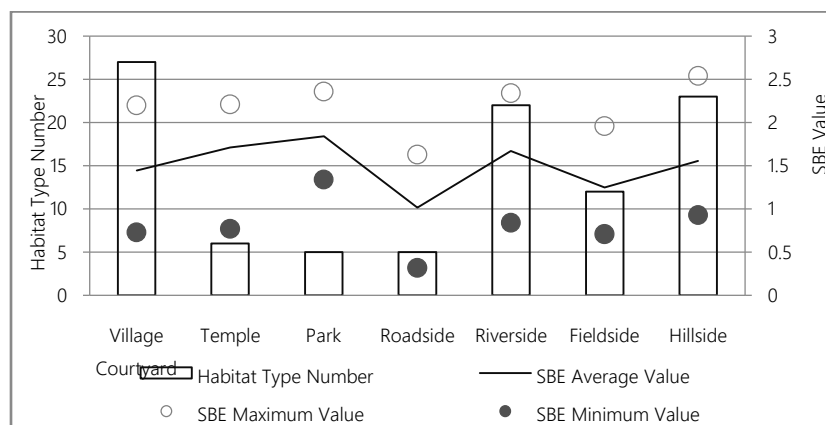


Fig 1: SBE value analysis of different habitat types of ancient trees in Wenzhou

## 3.2 Research on Aesthetic Factors of Ancient Trees Landscape based on Single Factor Analysis



In order to systematically study the main influencing factors of the aesthetic comprehensive evaluation of ancient trees in Wenzhou, and analyze the influence degree of each factor on SBE value, the paper uses spss20.0 software to do correlation analysis on each landscape aesthetic factor and SBE value. According to the results of single factor analysis, except for the four variables of branch and leaf singularity, seasonal change, trees age and line of sight width, there was a correlation between SBE value and other variables, P value was less than 0.05 (Table 3). Among them, the correlation between crown plumpness, evenness of branches and leaves, landscape texture softness, spatial hierarchy, light sensitivity, environmental harmony and SBE value is extremely significant. After hundreds of years of evolution, most of the ancient trees grow luxuriantly. At the same time, the evergreen trees species such as Ficus microcarpa, Cinnamomum camphora account for the majority of the 100 ancient trees in Wenzhou. Therefore, the differences of response values of different testers to trees age and line of sight width are small, so it has no significant impact on the dependent variable SBE value.

**TABLE III. Single factor analysis of landscape aesthetic factors**

Landscape aesthetic factors	mean value	standard deviation	Pearson correlation	Significant p value	Relevance evaluation
Beauty of trees shape	3.66	1.08	0.235*	0.019	significant correlation
Crown plumpness	3.61	1.07	0.617**	0.000	Extremely remarkable
Evenness of branches and leaves	3.4	0.96	0.387**	0.000	Extremely remarkable
Singularity of branches and leaves	3.44	0.87	-0.139	0.169	Not very relevant
Color richness	3.27	0.84	0.247*	0.013	significant correlation
Seasonal change	3.1	1.2	-0.144	0.154	It's not very relevant
Landscape texture softness	3.02	0.86	0.441**	0.000	Extremely remarkable
trees age	3.69	1.3	-0.023	0.817	Not very relevant
trees height growth	3.59	0.99	0.230*	0.021	significant correlation
Spatial hierarchy	3.45	1.01	0.354**	0.000	Extremely remarkable
Line of sight width	3.26	1.02	0.019	0.851	Not very relevant
Light sensitivity	3.45	1.1	0.264**	0.008	Extremely remarkable
Environmental harmony	3.55	0.89	0.349**	0.000	Extremely remarkable

### 3.3 Multiple Linear Regression Analysis of Aesthetic Factors of Ancient Trees Landscape

### 3.3.1 Multiple Linear Regression Analysis

In order to study the influence of different factors on SBE value of ancient trees landscape, based on single factor analysis, multiple linear regression analysis is conducted to construct regression model. The specific method is as following. Eliminating the insignificant independent variables and retaining the significant variables to optimize the F value of the model. The regression analysis is used to eliminate the variables. Finally, the four independent variables which are crown plumpness, trees height growth potential, spatial hierarchy and light sensitivity are all in the equation, and F value is the best. Therefore,  $SBE = y$ , crown fullness =  $x_1$ , trees height growth =  $X_2$ , spatial hierarchy =  $X_3$ , and light sensitivity =  $X_4$

Then the sample regression equation is:  $y = 0.16 + 0.283x_1 - 0.066x_2 + 0.081x_3 + 0.084x_4$

After calculation, the determination coefficient  $R^2$  of the fitting index is 0.499,  $f = 23.654$ ,  $P = 0.000$ . According to the standard regression coefficient in the table above, the influence of the four independent variables on the dependent variable SBE value ( $y$ ) from large to small is crown plumpness ( $x_1$ ), light sensitivity ( $x_4$ ), spatial stratification ( $x_3$ ) and trees height growth ( $x_2$ ).

### 3.3.2 Variable Coefficient Test of Regression Equation

According to the regression analysis, the variables in the equation are tested separately. After five times of variable elimination, model 6 (Table 4) is obtained. Independent variables crown plumpness, spatial stratification and light sensitivity have significant effects on the dependent variable SBE, P values are 0.000, 0.033 and 0.015. They are all less than 0.05. P is 0.096 and it is more than 0.05. Therefore, the SBE value of ancient trees landscape has significant influence on crown plumpness, spatial hierarchy and light sensitivity.

**TABLE IV. Regression equation coefficient analysis of model 6**

Model 6	Coefficient of non standardization	Standard error	Standard coefficient	T	Sig.	partial correlation	Partial correlation
Constant	0.16	0.18		0.888	0.377		
Crown plumpness	0.283	0.036	0.672	7.828	0.000	0.626	0.568
trees height growth	-0.066	0.039	-0.145	-1.68	0.096	-0.17	-0.122
Spatial hierarchy	0.081	0.037	0.181	2.17	0.033	0.217	0.158
Light sensitivity	0.084	0.034	0.203	2.487	0.015	0.247	0.181

## IV. CONCLUSION AND DISCUSSION

The research on the protection and utilization of ancient trees involves many subjects and

fields. At present, most of the research focuses on the investigation of urban ancient trees resource [19], ancient trees health evaluation [20], ancient trees value evaluation [21], space technology [22]. However, the linear regression model is established by combining SBE method and SD method to evaluate ancient trees landscape. Although this method is widely used in scenic forest evaluation [23-27] and plant community construction [28-29], the research on ancient trees is also an attempt. Based on SBE-SD comprehensive evaluation method, the result shows that: (1) The highest landscape value of ancient trees in Wenzhou is *Ficus* and *Liquidambar* plants, such as *Ficus microcarpa*, *Ficus microcarpa*, *Liquidambar formosana*, etc., and the scores of ancient trees in parks, temples and waterfront are high. (2) The main factors influencing the aesthetic value of ancient trees in Wenzhou are crown plumpness, spatial level and light sensitivity. (3) The SBE value is positively correlated with crown plumpness, leaf evenness, landscape texture softness, spatial stratification, light sensitivity and environmental harmony. This result is close to the result of ancient trees community evaluation [8-10,16,23]. However, the aesthetic degree of trees is not consistent with the research conclusions of ancient trees communities in Jiuhuashan Nature Reserve [9] and ancient trees communities in West Lake scenic spot [10]. The main reason is that the beauty of trees is closely related to the appearance of ancient trees. Because the community is composed of many ancient trees, it is better than single plant in both volume and scale. In the meanwhile, due to its beautiful environment, good management and population collocation, the growth of trees height in the West Lake scenic area is better than those in ordinary area. It shows more seasonal change and it is inconsistent with the evaluation of single trees species. Of course, it is a very complex psychological process [27]. However, the subjective conclusion is consistent with the selection conclusion of “my favorite 100 ancient and famous trees in Wenzhou”, which also verifies the consistency of people’s value orientation of ancient trees aesthetic evaluation in a certain period of time. Finally, ancient trees are precious cultural heritage and important landscape tourism resource. Combined with the research on the aesthetic value of ancient trees in the early stage, focusing on the protection and tourism development, this paper puts forward the development strategies of ancient trees Tourism. First, strengthening the protection of resource and choosing sustainable development; second, strengthening the dynamic supervision and making full uses of information management; third, increasing the investment in scientific research and starting multi-channel protection. This study provides a basis for the rational development and utilization of ancient trees.

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