

Forward

Rich forest landscape resources in China have great value for forest tourism. Forest parks, as a major form for forest tourism, have got significant progress in their development and construction, attracting growing attention from the public.

This Standard is based on longtime practical experience and achievements of science and technology in China, referencing foreign advanced technology and experience to determine the protection standards, forms of use, development scales, and service features of forest parks; to strengthen the rating management and classification guidance of forest parks; to provide guidelines to the systematic construction of forest parks.

This Standard determines the evaluation structure and methods from the quality of its landscape resources and regional environment of a forest park and its tourism development conditions.

Appendix A, Appendix B, Appendix C, and Appendix D are for this Standard.

This Standard is proposed by the State Forestry Administration.

This Standard is taken charge of by the Forest Park Management Office of the State Forestry Administration.

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National Standard of People's Republic of China

China Forest Park Landscape Resources Grade Evaluation GB/T 18005-1999

1 Scope

This Standard specifies the principles and methods of China Forest Park Landscape Resources Grade Evaluation (CFPLRGE) as the basis of protection, development, construction and management of forest parks.

This Standard is applied to built and to-be-built forest parks of all levels.

2 Standards Cited

Some of the provisions in the following Standards are cited in this Standard to be its own provisions. When this standard is published, provisions shown here are valid. All of the Standards may be revised. Those who use this Standard should explore possibilities for using the latest versions of the following Standards.

GB 3096 -1996 Environmental Quality Standard for Atmosphere

GB 3838 -1988 Environmental Quality Standard for Surface Water

GB 15618-1995 Environmental Quality Standard for Soils

3 Definitions

This Standard adopts the following definitions.

3.1 Landscape Resources

Natural and man-made wealth whose carrier is landscape environment that has universal social values .

3.2 Forest Landscape Resources

Various substances and factors that can attract tourists and be used in tourism development, producing appropriate social, economic and environmental benefits, in forest resources and their environment.

3.3 Landscape Resources Quality

The scientific, cultural, ecological, and tourism value of landscape resources.

3.4 Forest Park

A lawfully applied and approved forest area with forest landscape resources and environmental conditions of a certain size and quality to develop forest tourism.

3.5 Weighted Number

The value to measure the effects of each variable on the overall in statistics.

4 Forest Park Landscape Resources Quality Evaluation (FPLRQE)

4.1 Evaluation Principles

4.1.1 Based on detailed surveys on forest park landscape resources, the evaluation should classify and grade according to the characteristics and the correlation among landscape resources.

4.1.2 A comprehensive FPLRQE should be conducted through a quantitative evaluation, .

4.1.3 The evaluation should be able to reflect the landscape resources quality and the environment features of a forest park, focusing on the relative position of forest landscape resources and the feasibility of developing forest tourism.

4.2 The value of FPLRQE is obtained according to the evaluation methods below. The full mark is 30.

4.3 Evaluation Methods

The values of landscape resource evaluation factors are weighed to get the value of landscape resource initial quality. Then it combines with the value of the landscape combination condition and the value of additional scores of distinguished features to get the value of FPLRQE. See Table A in Appendix A.

4.4 Landscape Resources Initial Quality

Forest park landscape resources are classified into five categories: physiographic resources, hydrographic resources, biological resources, cultural resources, and astronomical resources. Each category has five evaluation factors. The value of each factor is determined by its importance and its relative position. The sum of the factor values makes the weighted number of the category.

4.4.1 Types of Landscape Resources

4.4.1.1 Physiographic Resources

Typical geological structures, stratotype, biological fossils, natural disaster sites, mountains, lava landscapes, erosion relic landscape, peculiar and pictographic rocks and hills, sand (gravel) areas, sand (gravel) beach, islands, caves, and other physiographic landscapes.

4.4.1.2 Hydrographic Resources

Scenic river segments, rafting river segments, lakes, waterfalls, springs, glaciers, and other hydrographic landscapes.

4.4.1.3 Biological Resources

A variety of natural and planted forests, grasslands, meadows, ancient trees, exotic plants, wild and cultivated animals and other biological resources and landscapes.

4.4.1.4 Cultural Resources

Historical sites, ancient and modern buildings, social custom, local products, and other cultural landscapes.

4.4.1.5 Astronomical Resources

Snow, rain, clouds, sunrise, sunset, Buddha glory, mirage, aurora, rime and other astronomical landscapes.

4.4.2 Landscape Resources Evaluation Factors

4.4.2.1 Typical Level

The typical level of a landscape resource in the respect of landscape and environment.

4.4.2.2 Naturalness

The degree of preservation of a landscape resource and its ecological environment.

4.4.2.3 Diversity

A landscape resource's diversity in the respect of categories, forms and characteristics.

4.4.2.4 Scientific Value

The value that a landscape resource has in the respect of education and research.

4.4.2.5 Utilization

The complexity degree of conducting tourism activities of a landscape resource and its eco-environment carrying capacity

4.4.2.6 Attractiveness

How a landscape resource attracts tourists.

4.4.2.7 Zonation

Typical characteristics of a biological resource in its horizontal and vertical distribution.

4.4.2.8 Rarity

Categories and numbers of animals, plants and cultural relic under protection of a landscape resource.

4.4.2.9 Degree of Combination

The interrelationship among all categories of landscape resources.

4.4.3 The value of landscape resources initial quality is obtained by weighing the values of the five landscape resource categories.

4.4.4 Evaluation of Landscape Resources Combination

Forest park landscape resources combination condition is evaluated by the Degree of Combination.

4.4.5 Additional Scores for Distinguished Features

A single landscape resource factor that has a significant effect or special importance may add scores to the Evaluation according to the additional scores rules. 4.5 Calculation of FPLRGE

4.5.1 Value of landscape resources initial quality evaluation is calculated as formula (1):

$$B = \sum X_i F_i / \sum F \quad (1)$$

B-- value of Landscape Resources Initial Quality Evaluation;

X-- value of landscape resources category;

F-- weighted number of landscape resources category.

4.5.2 Full mark of the Degree of Combination (Z) is 1.5.

4.5.3 Full mark of the Additional Scores for Distinguished Features (T) is 2.

4.5.4 The value of CFPLRGE is calculated as formula (2):

$$M = B + Z + T \quad (2)$$

M-- Value of CFPLRGE;

B-- Value of Landscape Resources Initial Quality;

Z-- Value of Landscape Resources Combination;

T-- Additional Scores for Distinguished Features

4.5.5 The calculation method of CFPLRGE refers to Appendix B.

4.5.6 The closer the factor value to the weighted number, the better the landscape resources initial quality.

5 Forest Park Regional Environment Evaluation (FPREE)

5.1 The value of FPREE is obtained by the evaluation of the environmental indexes mentioned below. The full mark is 10.

5.2 Indexes of FPREE includes: air quality, surface water quality, soil quality, anion content in the air, bacteria content in the air.

5.3 The value of FPREE (H) is obtained by adding each index value. See Appendix C.

6 Forest Park Tourism Development Condition Evaluation (FPTDCE)

6.1 The value of FPTDCE is obtained by the evaluation of the development indexes mentioned below. The full mark is 10.

6.2 Indexes of FPTDCE includes: park area, suitable period for tourism, region, external transportation, internal transportation, and infrastructure.

6.3 The value of FPTDCE (L) is obtained by adding each index value. See Appendix D.

7 Forest Park Landscape Resources Grade Evaluation (FPLRGE)

7.1 The value of FPLRGE is calculated as formula (3):

$$N = M + H + L \quad (3)$$

N-- Value of FPLRGE;

M-- Value of CFPLRGE;

H-- Value of FPREE;

L-- Value of FPTDCE.

7.2 Full mark of FPLRGE is 50.

7.3 Level determination of FPLRGE

The following three levels are classified according to the values of landscape resource grading evaluation:

Level 1: 40-50. Forest park landscape resources in this level has much high resource and tourism value which can hardly remade by man. Detailed measures of preservation, conservation, and development should be taken to enhance protecting the forest park.

Level 2: 30-39. Forest park landscape resources in this level has relatively high resource and tourism value. Sustainable, scientific and rational development should be conducted.

Level 3: 20-29. Forest park landscape resources in this level and its eco-environment should be improved at the same time with the development of tourists activities.

Forest park landscape resources under Level 3 should at first improve its resource quality and environment.

Appendix A

Forest Park Landscape Resources Grade Evaluation & Factor Value

A1 Forest Park Landscape Resources Quality Evaluation. See Diagram A1.

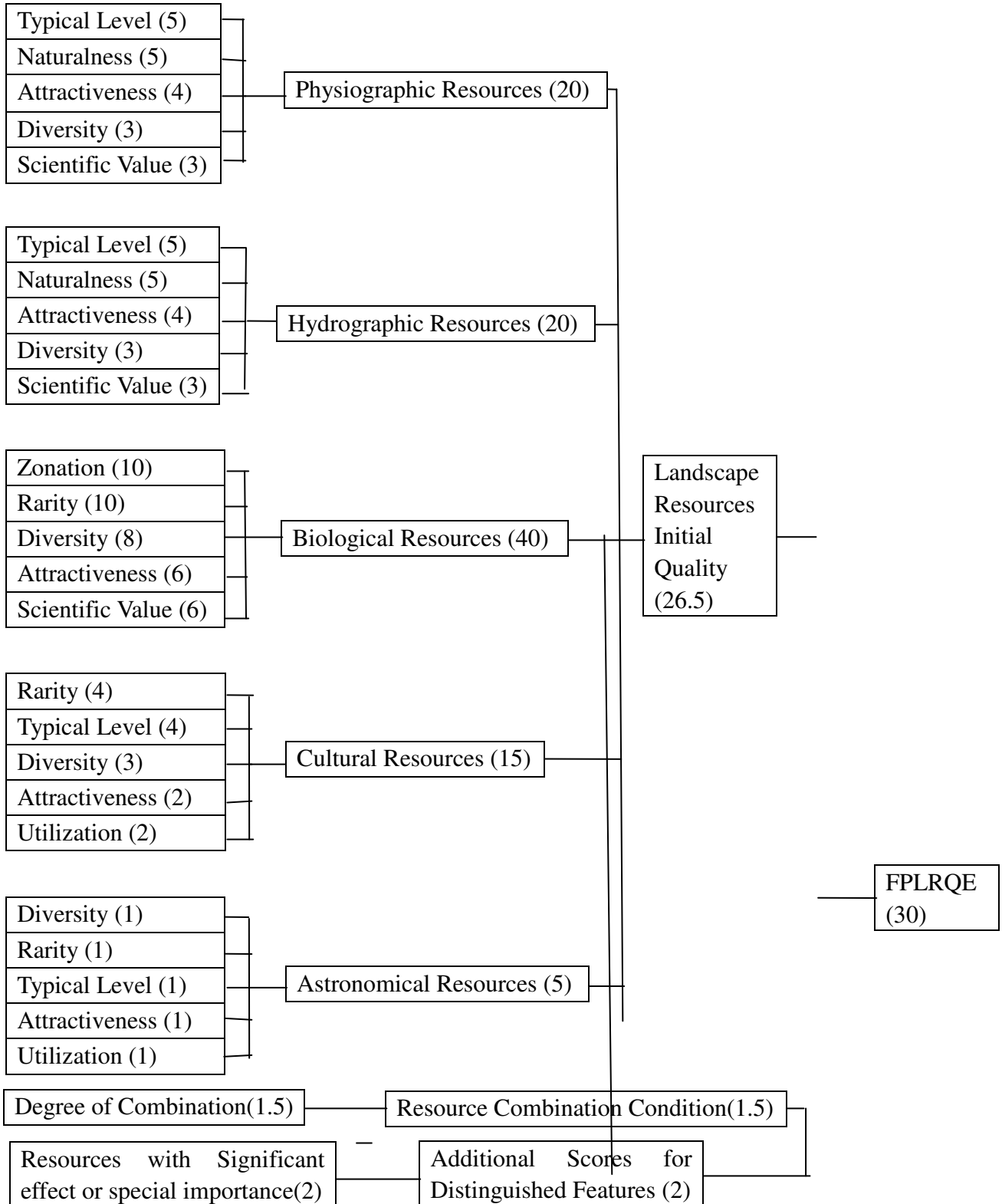


Diagram A

A2 Factor Values of FPLRQE see Table A1-Table A7.

Table A1 Evaluation Scores for Physiographic Resources

Evaluation Factor	Weigh	Very Strong	Strong	Less Strong	Weak
Typical Level	5	5	4-3	2	1-0
Naturalness	5	5	4-3	2	1-0
Attractiveness	4	4	3	2	1-0
Diversity	3	3	2	1	1-0
Scientific Value	3	3	2	1	1-0

Table A2 Evaluation Scores for Hydrographic Resources

Evaluation Factor	Weigh	Very Strong	Strong	Less Strong	Weak
Typical Level	5	5	4-3	2	1-0
Naturalness	5	5	4-3	2	1-0
Attractiveness	4	4	3	2	1-0
Diversity	3	3	2	1	1-0
Scientific Value	3	3	2	1	1-0

Table A3 Evaluation Scores for Biological Resources

Evaluation Factor	Weigh	Very Strong	Strong	Less Strong	Weak
Zonation	10	10-8	7-6	5-3	2-0
Rarity	10	10-8	7-6	5-3	2-0
Diversity	8	8-6	5-4	3-2	1-0
Attractiveness	6	6-5	4	3-2	1-0
Scientific Value	6	6-5	4	3-2	1-0

Table A4 Evaluation Scores for Cultural Resources

Evaluation Factor	Weigh	Very Strong	Strong	Less Strong	Weak
Rarity	4	4	4-3	2	1-0
Typical Level	4	4	4-3	2	1-0
Diversity	3	3	2	2-1	1-0
Attractiveness	2	2	2-1	1-0.5	0.5-0
Scientific Value	2	2	2-1	1-0.5	0.5-0

Table A5 Evaluation Scores for Astronomical Resources

Evaluation Factor	Weigh	Very Strong	Strong	Less Strong	Weak
Diversity	1	1-0.8	0.7-0.5	0.4-0.3	0.2-0
Rarity	1	1-0.8	0.7-0.5	0.4-0.3	0.2-0
Typical Level	1	1-0.8	0.7-0.5	0.4-0.3	0.2-0
Attractiveness	1	1-0.8	0.7-0.5	0.4-0.3	0.2-0
Utilization	1	1-0.8	0.7-0.5	0.4-0.3	0.2-0

Table A6 Evaluation Scores for Combination Condition

Evaluation Factor	Very Strong	Strong	Less Strong	Weak
Degree of Combination	1.5-1.2	1.1-0.8	0.7-0.4	0.3-0

Table A7 Additional Scores for Distinguished Features

Evaluation Factor	Very Strong	Strong	Less Strong	Weak
Additional Scores	2-1.5	1.4-1.0	0.9-0.5	0.4-0

Appendix B

Ideal Value Calculation of FPLRQE

Table B1

Types of Resources	Evaluation Factor	Value	Weigh	Weighed Number of Resources Initial Quality	Value of FPLRQE
Physiographic Resources X_1	Typical Level	5	F_1 20	26.5 B	30 M
	Naturalness	5			
	Attractiveness	4			
	Diversity	3			
	Scientific Value	3			
Hydrographic Resources X_2	Typical Level	5	F_2 20	26.5 B	30 M
	Naturalness	5			
	Attractiveness	4			
	Diversity	3			
	Scientific Value	3			
Biological Resources X_3	Zonation	10	F_3 40	26.5 B	30 M
	Rarity	10			
	Diversity	8			
	Attractiveness	6			
	Scientific Value	6			
Cultural Resources X_4	Rarity	4	F_4 15	26.5 B	30 M
	Typical Level	4			
	Diversity	3			
	Attractiveness	2			
	Scientific Value	2			
Astronomical Resources X_5	Diversity	1	F_5 5	26.5 B	30 M
	Rarity	1			
	Typical Level	1			
	Attractiveness	1			
	Utilization	1			
Resource Combination Condition Z	Degree of Combination	1.5	1.5		30 M
Additional Scores for Distinguished Features T		2	2		
Notes: $B = \sum X_i F_i / \sum F$ $M = B + Z + T$					

Appendix C

Evaluation Standard for FPREE

Table C1

Items	Indexes	Scores
Air Quality	Meet Level-1 Standard of National Air Environment Quality (GB 3096-1996)	2
	Meet Level-2 Standard of National Air Environment Quality (GB 3096-1996)	1
Surface Water Quality	Meet Level-1 Standard of National Surface Water Environment Quality (GB 3838-1988)	2
	Meet Level-2 Standard of National Surface Water Environment Quality (GB 3838-1988)	1
Soil Quality	Meet Level-1 Standard of National Soil Environment Quality (GB 15618-1995)	1.5
	Meet Level-2 Standard of National Soil Environment Quality (GB 15618-1995)	1
Anion Content in the Air	50,000/cm ³ in main scenic spots in tourist season	2.5
	10,000-50,000/cm ³ in main scenic spots in tourist season	2
	3,000-10,000/cm ³ in main scenic spots in tourist season	1
	1,000-3,000/cm ³ in main scenic spots in tourist season	0.5
Bacteria Content in the Air	Less than 1,000/m ³	2
	1,000-10,000/m ³	1.5
	10,000-50,000/m ³	0.5
Note: The value of environment quality is obtained by adding all the individual index value. The full mark is 10.		

Appendix D

Evaluation Standard and Indexes for FPTDCE

Table D1

Items		Index	Scores
Park Area		Park planning area greater than 500h	1
Suitable periods for tourism		Greater than or equal to 240days/year	2
		Between 150days/year--240days/year	1
		Less than 150days/year	0.5
Region		Less than 100km from capital cities (including provincial cities) or cities with one million of population in 100km around from the park or a famous tourism region/site in 100km.	2
		100km-200km away from capital cities (including provincial cities) or a famous tourism region/site	1
		More than 200km away from capital cities (including provincial cities) or a famous tourism region/site	0.5
External transportation	Railway transportation	Railway around 50km with heavy passenger transportation and is a mid-size or large-size station in the main railway line	1
		Railway around 5km with little passenger transportation and not in the main railway line.	0.5
	Road transportation	National highway or provincial highway with heavy passenger transportation to anywhere any time	1
		Provincial highway or county highway with relatively heavy transportation among which are some passenger transportation.	0.5
	Water transportation	Convenient waterway with heavy passenger transportation and plays an important role in the local transportation.	1
		Convenient waterway with passenger transportation.	0.5
	Air transportation	Domestic airport in 10km or international airport in 150km.	1
	Internal transportation		Some reachable means of transportation in the region for tourists to choose.
Only simple means of transportation in the region.			0.5
Infrastructure		Having access to fresh water, adequate electricity, good communication tools, and facilities for tourists reception are good.	2
		Water, electricity, and communication tools are available, and be able to receive tourists. But the infrastructure is not so good.	1
Note: The value of is obtained by adding all the single index scores.			

