

## PRESENT STATUS AND FEATURES OF PLANT LANDSCAPE OF TEMPLE GARDENS IN BAYU, CHINA

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### Abstract

Based on a survey of present status of plant landscape of eighteen temple gardens in Bayu, China, this research summarizes and analyzes their distinguishing features and the design principles of plant landscape which can provide evidence and foundation of the landscape planting theory of temple gardens in China. A total of 89 plant species were identified from 18 temple gardens in Bayu and listed with locations and habits.

### Introduction

The temple gardens of Bayu mainly refer to the Buddhist temple and Taoist gardening in Chongqing, including the inner courtyard of the temple, the outer space environment, and gardens attached to the architectural complexes that serve the religious beliefs and ideological worship. Temple garden provides a public recreational environment for monks, taoists and tourists, and is also an important carrier of the Buddhism and Taoism culture in Bayu. As a relatively popular area of religion in China, its special geographical environment and plant landscape are the important components of Bayu temple gardens. Therefore, a systematic investigation and study on the plant landscape of the temple gardens in Bayu area will significantly contribute to the protection of the gardens and maintaining the inheritance of the characteristic plant landscaping in temple sites.

There are numerous temples and taoist temples in the mountains and cities in over 40 districts of Chongqing. Among them, more than 170 were officially registered and approved by the state, and more than 100 have agreed to carry out religious activities but have not yet completed the formalities (Ma and Zhang 2013). In the continuous development process of Bayu Temple Gardens, as with other garden forms, they were immersed in the aesthetic trend of thoughts of different eras and the pursuit of the aesthetic conception of "the winding path leads to the seclusion, the Meditation Room is hidden in the deepest part by the flowers and trees". And gradually formed the following three situations: The gardens built separately from the temples; the greening or gardening of the courtyards of temples; the landscaped environment surrounding the temples of the countryside (Zhou 2008). Among them, most of the temples located in the cities belonging to the first and second types; the temples in the rural areas belong to the third category. The location of the third temples is highly demanding of natural conditions, and the base site is chosen not only to operate the temple itself, but also to the surrounding landscape. Temple gardens are generally divided into three categories: Urban temple gardens, suburban temple gardens and mountain-forest temple gardens (Dong 2007).

### Materials and Methods

After extensive investigations, 18 Temple gardens were selected in Bayu as a principle of well-preserved architecture, a long history of temples, and a relatively complete plant landscape. A total of 18 Temple Gardens, from three types, were used for site mapping and investigation and these are listed with locations in Table 1.

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**Table 1. The list of 18 selected temples.**

Type	No.	Name	Location	Year of construction
Urban Temple Gardens	4	Baolun Temple	Opposite to Ciqikou street building in Chongqing	The records of Ba County date back to the reign of emperor Zhenzong of the song dynasty.
		Luohan Temple	National Road, Yuzhong District, Chongqing	Built during the Zhiping period of the Northern Song Dynasty (1064-1067).
		Nengren Temple	No.92 Zhonghua Road, Yuzhong District, Chongqing	The year of construction was unknown. It was recorded that the Kangxi era was built to a certain scale.
Suburban Temple Gardens	7	Guanyin Temple	Xuefu Avenue, Nan'an District, Chongqing	Founded during the Daoguang period of the Qing Dynasty (About 1821).
		Jingshui Temple	Dongjintuo, Hechuan, Chongqing	Founded during the Tang Dynasty and it was one of the four major temples in Hechuan.
		Dafo Temple	At the foot of the Dingming mountain in the west of Tongnan County	Founded during the Xiantong period of the Tang Dynasty (860-873).
		Ciyun Temple	The piedmont of the Lion Peak in Xuantan temple of Nan'an district, Chongqing	It was built in the Tang Dynasty and rebuilt in Qianlong period of qing dynasty.
		Longfeng Temple	The end of Zhigang Avenue in Jiulongpo District, Chongqing	Founded in the seventh years of the Yuan Zhengzhi Dynasty, formerly known as "Dragon King Temple", and rework in the thirteen years of the Qing Tongzhi
Mountain -forest Temple Gardens	7	Dafo Temple	Nan'an District, Chongqing, facing the Yangtze River	Founded at the end of Yuan Dynasty (about 1421)
		Qianfo Temple	Located in the lion mountain, adjacent to the Ciyun Temple, Nan'an District	It was built in the Jiajing period of the Ming Dynasty (about 1529)
		Donglin Temple	2.5 km west of Bishan County, Chongqing	The year of construction was unknown, about the end of the Qing Dynasty
		Tushan Temple	The top of the Tu mountain, Nan'an District	As early as the Western Han Dynasty, there were historical records, the oldest temple in Bayu.
		Jingyun Temple	On the Jinyun Mountain in Beibei	The first year of jiaping in the southern song dynasty (423)
		Wenquan Temple	At the foot of the Jinyun mountain in Beibei	Founded in the first year of Liu Song Jingping in the Southern Dynasties (AD 423)
		Laojun Cave	On Laojun Mountain near Huangjueya, Chongqing	Founded in the Han Dynasty; officially founded in the late Sui and early Tang Dynasty.
		Erfo Temple	Near laitan town in Hechuan District	The date of construction is unknown, According to historical records, monks Zong Zeng made prayer to the temple in the second year of Fuangming, indicating that the late Tang Dynasty was built to a certain scale
		Huayan Temple	On the Huayan Mountain in Jiulongpo	There is no exact textual research in the period of construction. According to legend, it was built in the Tang and Song dynasties.
Shaolong Taoist Temple	On the Jinyun Mountain in Beibei	Built in the Ming dynasty (about 1485)		

## Results and Discussion

Through the on-site recording and mapping of the plants used in the 18 Temple Gardens, the statistical results are presented in Table 2.

According to field survey, there are five planting styles in Temple Gardens: isolated planting, symmetric planting, linear planting, group planting and block planting (Li and Ma 2012, Li *et al.* 2011), as shown in Table 3.

There are many evergreen broad-leaved plants, such as, *Cinnamomum camphora* (L.) Presl. and *Michelia alba* DC. in Temple Gardens, and the frequency of using evergreen plants is higher than that of deciduous plants. This is consistent with the type of zonal vegetation in the Bayu area, which indicates that the construction concept of suitable land and suitable trees is fully taken into account in the plant selection of temple gardens. From towns to mountains, the types of plants used in these gardens are gradually increasing, Urban Temple Gardens < Suburban Temple Gardens < Mountain-forest Temple Gardens. The most frequently used garden plant is *Ficus virens* Ait. var. *sublanceolata* (Miq.) Corner, about 80%. About 14 other species, such as, *Osmanthus fragrans* (Thunb.) Lour., *Cycas revoluta* Thunb., *Michelia alba* DC., *Podocarpus* L'Her. ex. Persoon, etc, are used. Higher-frequency plants have emerged in 6 Temple Gardens (Fig. 1). About 75 plants are used less often, and many plants only appear in gardens of certain temples. In recent years, urban landscaping plants imported from other places, such as *Araucaria cunninghamii* Mudie and *Bougainvillea spectabilis* Willd., have been used in the Temple Gardens. This shows that the plants used in the Temple gardens are affected by urban greening. In addition, plants that are not used in the construction of urban landscaping, such as *Pinus massoniana* Lamb and *Broussonetia papyrifera* (Linn.) L'Hér. ex Vent., have also appeared. This shows that the plant landscaping in Bayu Temple gardens is flexible, and the effective use of native plants in the bases is realized.

The urban Temple Garden is mainly reflected in the courtyard landscape surrounded by the temple architecture. Limited by space and function of use, species and quantity of plants are relatively small, mostly mainly arbor, and they are isolated planted as shade trees at the courtyard; the partial space is arranged by symmetric planting. In addition, bonsai is placed in the courtyard to enrich the garden landscape. The Symmetrical planting of *Podocarpus* L'Her. ex. Persoon and *Chimonanthus praecox* (Linn.) Link at the end of the entrance steps not only enhances the atmosphere of the Buddhist culture in the Luohan Temple, but also makes the Luohan Temple distinguish itself from the surrounding urban environment (Fig. 2). The *Michelia alba* DC. planted isolatedly in front of the Main hall, whose main trunk stands upright, enhances the landscape effect of the courtyard space in the temple. The bonsai arranged on the side of the temple enriches the courtyard landscape. The suburban temple garden refers to the courtyard space inside the temple and its landscaping surroundings. Most of them are dominated by natural forests, making the temple view far more profound. Some temples in the outer space of their afforestation, the formation of a community type of plant landscape, the forms of plants are more abundant, and the artistic conception is more skillful. Due to the increase in the scope of space, its plant species and quantity have a larger increase than that of the temple gardens. For instance, the background forest of the Ciyun Temple (Fig. 3) is not only to give out a quiet atmosphere, but also to hide the temple view, so that visitors can experience the effect of "the Meditation Room is hidden in the deepest part by the flowers and trees". The plants in the courtyard, according to the different spatial function needs, use the forms of symmetric planting, linear planting, group planting and block planting flexibly, such as the *Osmanthus fragrans* (Thunb.) Lour. group planted after the Sansheng Temple, which not only enrich the landscape of monasteries, but also provide a good place for monks and visitors to think of Buddhism. The temples, located in the mountains and forests, are rich in natural plant landscapes, which are often used as background forests to set up a deep and

Table 2. The plant list of 18 Temple Gardens in Bayu, China.

Type	Position	Trees		Shrubs		Others	Total (sps.)
		Evergreen	Deciduous	Evergreen	Deciduous		
Urban Temple Gardens	Luohan Temple	<i>Osmanthus fragrans</i> (Thunb.) Lour., <i>Michelia alba</i> DC, <i>Podocarpus</i> L'Her. ex. Persoon, <i>Pinus massoniana</i> Lamb., <i>Ficus microcarpa</i> Linn. F.	<i>Ficus virens</i> Ait. var. <i>sublanceolata</i> (Miq.) Corner, <i>Salix babylonica</i> , <i>Ficus religiosa</i> Linn., <i>Punica granatum</i> L.	<i>Cycas revoluta</i> Thunb., <i>Rhapis excelsa</i> (Thunb.) Henry ex Rehd.	<i>Chimonanthus praecox</i> (Linn.) Link	<i>Ophiopogon japonicus</i> (Linn. f.) Ker-Gawl., <i>Alocasia macrorrhiza</i> (L.) Schott, <i>Wisteria sinensis</i> (Sims) Sweet, <i>Cyperus alternifolius</i> L., <i>Bambusa multiplex</i> (Lour.) Rausch. ex Schult. Fernleaf R. A. Young	17
		<i>Osmanthus fragrans</i> (Thunb.) Lour., <i>Michelia alba</i> DC., <i>Cupressus funebris</i> Endl., <i>Livistona chinensis</i> (Jacq.) R.Br. ex Mart.	<i>Ficus virens</i> Ait. var. <i>sublanceolata</i> (Miq.) Corner, <i>Ginkgo biloba</i> L., <i>Salix babylonica</i> , <i>Punica granatum</i> L., <i>Malus halliana</i> Koehne	<i>Cycas revoluta</i> Thunb., <i>Rhapis excelsa</i> (Thunb.) Henry ex Rehd.	<i>Chimonanthus praecox</i> (Linn.) Link	<i>Ophiopogon japonicus</i> (Linn. f.) Ker-Gawl., <i>Bambusa multiplex</i> (Lour.) Rausch. ex Schult. Fernleaf R. A. Young, <i>Nymphaea tetragona</i> Georgi, <i>Bougainvillea spectabilis</i> Willd.	16
Nengren Temple	Nengren Temple	<i>Ficus virens</i> Ait. var. <i>sublanceolata</i> (Miq.) Corner	<i>Ficus virens</i> Ait. var. <i>sublanceolata</i> (Miq.) Corner	<i>Rhododendron simsii</i> Planch., <i>Schefflera octophylla</i> (Lour.) Harms			3
		<i>Osmanthus fragrans</i> (Thunb.) Lour., <i>Aratcaria cunninghamii</i> Mudie, <i>Ficus elastica</i> Roxb. ex Homem.	<i>Ficus virens</i> Ait. var. <i>sublanceolata</i> (Miq.) Corner	<i>Rhapis excelsa</i> (Thunb.) Henry ex Rehd., <i>Camellia japonica</i> L.	<i>Chimonanthus praecox</i> (Linn.) Link	<i>Alocasia macrorrhiza</i> (L.) Schott, <i>Bougainvillea spectabilis</i> Willd.	9

(Contd.)

Type Position	Trees		Shrubs		Others	Total (sps.)
	Evergreen	Deciduous	Evergreen	Deciduous		
	<i>Osmanthus fragrans</i> (Thunb.) Lour., <i>Michelia alba</i> DC., <i>Magnolia grandiflora</i> Linn.	<i>Ficus virens</i> Ait. var. <i>sublanceolata</i> (Miq.) Corner, <i>Ficus religiosa</i> Linn., <i>Firmiana platanifolia</i> (L. f.) Marsili	<i>Cycas revoluta</i> Thunb.		<i>Alcacia macrorrhiza</i> (L.) Schott, <i>Cyperus alternifolius</i> L., <i>Crinum asiaticum</i> L. var. <i>sinicum</i> (Roxb. ex Herb.) Baker, <i>Tropaeolum majus</i> , <i>Bambusa multiplex</i> (Lour.) Raeusch. ex Schult. Fernleaf R. A. Young	12
Dafo Temple In Tongnan	<i>Osmanthus fragrans</i> (Thunb.) Lour., <i>Cedrus deodara</i> (Roxb.) G. Don, <i>Bischofia javanica</i> Bl.	<i>Ficus virens</i> Ait. var. <i>sublanceolata</i> (Miq.) Corner, <i>Ginkgo biloba</i> L., <i>Koelreuteria paniculata</i> Laxm., <i>Magnolia denudata</i> Desr., <i>Robinia pseudoacacia</i> Linn., <i>Metasequoia glyptostroboides</i> Hu et Cheng, <i>Cerasus serrulata</i> (Lindl.) G. Don ex London var. <i>lannesiana</i> (Carri.) Makino, <i>Amygdalus persica</i> L., <i>Acer palmatum</i> Thunb. cv. <i>Atropurpureum</i>	<i>Rhododendron simsii</i> Planch., <i>Loropetalum chinense</i> var. <i>rubrum</i> Yieh	<i>Nandina domestica</i>	<i>Zoysia japonica</i> Steud., <i>Philodendron selloum</i> Koch, <i>Nephtrolepis auriculata</i> (L.) Trimen	20
Jingshui Temple	<i>Osmanthus fragrans</i> (Thunb.) Lour., <i>Michelia alba</i> DC., <i>Araucaria cunninghamii</i> Mudie, <i>upressus funebris</i> Endl., <i>Cedrus deodara</i> (Roxb.) G. Don, <i>Citrus maxima</i> (Burm.) Merr., <i>Ficus microcarpa</i> L. f.	<i>Ficus virens</i> Ait. var. <i>sublanceolata</i> (Miq.) Corner, <i>Salix babylonica</i>		<i>Euonymus japonicus</i> Thunb.	<i>Ophiopogon japonicus</i> (Linn. f.) Ker-Gawl., <i>Neosino calamus affinis</i>	12

(Contd.)

Type	Position	Trees		Shrubs		Others	Total (sps.)					
		Evergreen	Deciduous	Evergreen	Deciduous							
Longfeng Temple		Evergreen	<i>Michelia alba</i> DC., <i>Podocarpus</i> L'Her. ex. Persoon, <i>Sabina</i> <i>chinensis</i> cv. Pyramidalis, <i>Araucaria</i> <i>cunninghamii</i> Mudie	Deciduous	<i>Ficus virens</i> Ait. var. <i>sublanceolata</i> (Miq.) Corner, <i>Salix babylonica</i>	Evergreen	<i>Cycas revoluta</i> Thumb., <i>Rhododendron</i> <i>simsii</i> Planch., <i>Camellia japonica</i> L., <i>Loropetalum</i> <i>chinense</i> var. <i>rubrum</i> Yieh., <i>Buxus</i> <i>bodinieri</i> Levl.	Shrubs	<i>Jasminum</i> <i>nudiflorum</i> Lindl.	Others	<i>Ophiopogon japonicus</i> (Linn. f.) Ker-Gawl., <i>Wisteria sinensis</i> (Sims) Sweet, <i>Commelina communis</i> , <i>Neosino</i> <i>calamus affinis</i>	16
		Dafo Temple In Nan'an	Evergreen	<i>Cinnamomum</i> <i>camphora</i> (L.) Presl, <i>Sabina chinensis</i> cv. Pyramidalis	Deciduous	<i>Ficus virens</i> Ait. var. <i>sublanceolata</i> (Miq.) Corner, <i>Erythrina variegata</i> Linn., <i>Broussonetia</i> <i>papyrifera</i> (Linn.) L'Hér. ex Vent.	Evergreen	<i>Cycas revoluta</i> Thumb., <i>Rhododendron</i> <i>simsii</i> Planch.	Shrubs		Others	<i>Alocasia macrorrhiza</i> (L.) Schott
Qianfo Temple		Evergreen	<i>Osmanthus fragrans</i> (Thumb.) Lour., <i>Araucaria</i> <i>cunninghamii</i> Mudie, <i>Eriobotrya japonica</i> (Thumb.) Lindl.	Deciduous	<i>Ficus virens</i> Ait. var. <i>sublanceolata</i> (Miq.) Corner, <i>Celtis</i> <i>sinensis</i> Pers.	Evergreen	<i>Cycas revoluta</i> Thumb., <i>Rhododendron</i> <i>simsii</i> Planch.	Shrubs		Others	<i>Bougainvillea spectabilis</i> Willd.	8
		Donglin Temple	Evergreen	<i>Osmanthus fragrans</i> (Thumb.) Lour., <i>Michelia alba</i> DC., <i>Podocarpus</i> L'Her. ex. Persoon, <i>Sabina chinensis</i> cv. Pyramidalis	Deciduous	<i>Ficus virens</i> Ait. var. <i>sublanceolata</i> (Miq.) Corner	Evergreen	<i>Cycas revoluta</i> Thumb., <i>Murraya exotica</i> L.	Shrubs		Others	<i>Alocasia macrorrhiza</i> (L.) Schott, <i>Neosino calamus affinis</i> , <i>Bougainvillea spectabilis</i> Willd.

(Contd.)

Type	Position	Trees		Shrubs		Total (sps.)
		Evergreen	Deciduous	Evergreen	Deciduous	
Mountain-forest Temple Gardens	Tushan	<i>Osmanthus fragrans</i>	<i>Ficus virens</i> Ait. var. <i>sublanceolata</i> (Miq.) Corner,	<i>Cycas revoluta</i> Thunb., <i>Rhododendron simsii</i> Planch., <i>Rhapis excelsa</i> (Thunb.) Henry ex Rehd.		12
	Temple	<i>Podocarpus L'Her. ex. Persoon,</i> <i>Cinnamomum camphora</i> (L.) Presl., <i>Sabina chinensis</i> cv. <i>Pyramidalis,</i> <i>Magnolia grandiflora</i> Linn.	<i>Ficus virens</i> Ait. var. <i>sublanceolata</i> (Miq.) Corner, <i>Ficus religiosa</i> L., <i>Robinia pseudoacacia</i> Linn., <i>Cerasus serrulata</i> (Lindl.) G. Don ex London var. <i>lannesiana</i> (Carri.) Makino			
Jingyun Temple	Jingyun	<i>Osmanthus fragrans</i> (Thunb.) Lour., <i>Podocarpus L'Her. ex. Persoon,</i> <i>Cinnamomum camphora</i> (L.) Presl., <i>Cupressus funebris</i> Endl., <i>Eriobotrya japonica</i> (Thunb.) Lindl., <i>Cryptomeria fortunei</i> Hooibrenk ex Otto et Dietr	<i>Ginkgo biloba</i> L., <i>Sapindus mukorossi</i> Gaertn., <i>Sloanea sinensis</i> (Hance) Hemsl.	<i>Cycas revoluta</i> Thunb., <i>Rhapis excelsa</i> (Thunb.) Henry ex Rehd., <i>Rhododendron simsii</i> Planch., <i>Camellia japonica</i> L., <i>Viburnum odoratissimum</i> Ker-Gawl var. <i>awabuki</i> (K. Koch) Zabel ex Rumpf.	<i>Chimonanthus praecox</i> (Linn.) Link, <i>Hibiscus syriacus</i> Linn.	17
	Temple	<i>Osmanthus fragrans</i> (Thunb.) Lour., <i>Michelia alba</i> DC., <i>Podocarpus L'Her. ex. Persoon,</i> <i>Cupressus funebris</i> Endl., <i>Cedrus deodara</i> (Roxb.) G. Don, <i>Taxus wallichiana</i> var. <i>chinensis</i> (Pilg.) Florin	<i>Ficus virens</i> Ait. var. <i>sublanceolata</i> (Miq.) Corner, <i>Ginkgo biloba</i> L., <i>Koelreuteria paniculata</i> Laxm., <i>Firmiana platanifolia</i> (L. f.) Marsili, <i>Magnolia denudata</i> Desr., <i>Pteroceltis tatarinowii</i> Maxim., <i>Lagerstroemia indica</i> L.	<i>Rhapis excelsa</i> (Thunb.) Henry ex Rehd., <i>Ligustrum sinense</i> Lour	<i>Chimonanthus praecox</i> (Linn.) Link	
Wenquan Temple	Wenquan	<i>Osmanthus fragrans</i> (Thunb.) Lour., <i>Michelia alba</i> DC., <i>Podocarpus L'Her. ex. Persoon,</i> <i>Cupressus funebris</i> Endl., <i>Cedrus deodara</i> (Roxb.) G. Don, <i>Taxus wallichiana</i> var. <i>chinensis</i> (Pilg.) Florin	<i>Ficus virens</i> Ait. var. <i>sublanceolata</i> (Miq.) Corner, <i>Ginkgo biloba</i> L., <i>Koelreuteria paniculata</i> Laxm., <i>Firmiana platanifolia</i> (L. f.) Marsili, <i>Magnolia denudata</i> Desr., <i>Pteroceltis tatarinowii</i> Maxim., <i>Lagerstroemia indica</i> L.	<i>Rhapis excelsa</i> (Thunb.) Henry ex Rehd., <i>Ligustrum sinense</i> Lour	<i>Chimonanthus praecox</i> (Linn.) Link	19
					<i>Ophiopogon japonicus</i> (Linn. f.) Ker-Gawl., <i>Bambusa multiplex</i> (Lour.) Raeusch. ex Schult. Fernleaf R. A. Young, <i>Nymphaea tetragona</i> Georgi	

(Contd.)

Type	Position	Trees			Shrubs		Others	Total (sps.)
		Evergreen	Deciduous	Evergreen	Deciduous			
Erfu Temple		<i>Osmanthus fragrans</i> (Thunb.) Lour., <i>Michelia alba</i> DC., <i>Cinnamomum</i> <i>camphora</i> (L.) Presl., <i>Sabina chinensis</i> cv. <i>Pyramidalis</i> , <i>Araucaria</i> <i>cunninghamii</i> Mudie, <i>Cedrus deodara</i> (Roxb.) G. Don, <i>Magnolia grandiflora</i> Linn., <i>Citrus maxima</i> (Burm.) Merr., <i>Grevillea robusta</i> , <i>Cinnamomum</i> <i>pedunculatum</i> , <i>Platycladus orientalis</i> (L.) Franco	<i>Ficus virens</i> Ait. var. <i>sublanceolata</i> (Miq.) Corner, <i>Salix</i> <i>babylonica</i> , <i>Gleditsia</i> <i>sinensis</i>	<i>Cycas revoluta</i> Thunb., <i>Camellia</i> <i>japonica</i> L., <i>Pittosporum tobira</i> Jacq.	<i>Hibiscus</i> <i>syriacus</i> Linn., <i>Rosa chinensis</i> Jacq.	<i>Ophiopogon japonicus</i> (Linn. f.) Ker-Gawl.	20	
		Shaolong Taoist Temple	<i>Osmanthus fragrans</i> (Thunb.) Lour., <i>Michelia alba</i> DC., <i>Podocarpus L'Her.</i> ex. <i>Persoon</i> , <i>Sabina</i> <i>chinensis</i> cv. <i>Pyramidalis</i> , <i>Cinnamomum</i> <i>camphora</i> (L.) Presl., <i>Cupressus funebris</i> Endl., <i>Pinus</i> <i>massoniana</i> Lam., <i>Bischofia javanica</i> Bl., <i>Acacia confusa</i> Merr.	<i>Ginkgo biloba</i> L., <i>Metasequoia</i> <i>glyptostrobooides</i> Hu et Cheng, <i>Acer</i> <i>buergerianum</i> Miq., <i>Liquidambar</i> <i>formosana</i> Hance	<i>Cycas revoluta</i> Thunb., <i>Rhododendron</i> <i>simsii</i> Planch., <i>Camellia japonica</i> L., <i>Gardenia</i> <i>jasminoides</i> Ellis	<i>Musa basjoo</i> Siebold, <i>Hedychium coronarium</i> Koen., <i>Crinum asiaticum</i> L. var. <i>sinicum</i> (Roxb. ex Herb.) Baker, <i>Pelargonium hortorum</i> Bailey, <i>Neosino calamus affinis</i>	22	

(Contd.)



Type	Position	Trees		Shrubs		Others	Total (sps.)
		Evergreen	Deciduous	Evergreen	Deciduous		
	Huayan Temple	<p><i>Osmanthus fragrans</i> (Thunb.) Lour.,  <i>Michelia alba</i> DC.,  <i>Podocarpus</i> L'Her. ex. Persoon,  <i>Cinnamomum camphora</i> (L.) Presl.,  <i>Sabina chinensis</i> cv. <i>Pyramidalis</i>,  <i>Araucaria cunninghamii</i>  <i>Mudie</i>, <i>Cedrus deodara</i> (Roxb.) G. Don, <i>Magnolia grandiflora</i> Linn.,  <i>Grevillea robusta</i>,  <i>Livistona chinensis</i> (Jacq.) R.Br.,  <i>Archontophoenix alexandrae</i> (F. Muell.) H. Wendl. et Drude</p>	<p><i>Ficus virens</i> Ait. var. <i>sublanceolata</i> (Miq.) Corner,  <i>Ginkgo biloba</i> L.,  <i>Ficus religiosa</i> Linn., <i>Koelreuteria paniculata</i> Laxm.</p>	<p><i>Cycas revoluta</i> Thunb, <i>Rhapis excelsa</i> (Thunb.) Henry ex Rehd.,  <i>Rhododendron simsii</i> Planch.,  <i>Camellia japonica</i> L., <i>Ligustrum sinense</i> Lour,  <i>Viburnum odoratissimum</i> Ker-Gawl var. <i>awabuki</i> (K. Koch) Zabel ex Rumpf.,  <i>Pittosporum tobira</i></p>	<p><i>Chimonanthus praecox</i> (Linn.) Link,  <i>Nandina domestica</i></p>	<p><i>Ophiopogon japonicus</i> (Linn. f.) Ker-Gawl., <i>Viola tricolor</i> L.,  <i>Reineckia carnea</i> (Andr.) Kunth, <i>Neosino calamus affinis</i>,  <i>Nelumbo nucifera</i> Gaertn.</p>	30
	Laojun Cave	<p><i>Osmanthus fragrans</i> (Thunb.) Lour.,  <i>Michelia alba</i> DC.,  <i>Podocarpus</i> L'Her. ex. Persoon,  <i>Cinnamomum camphora</i> (L.) Presl., <i>Pinus massoniana</i> Lamb</p>	<p><i>Ficus virens</i> Ait. var. <i>sublanceolata</i> (Miq.) Corner,  <i>Ginkgo biloba</i> L.,  <i>Erythrina variegata</i> Linn.</p>	<p><i>Rhapis excelsa</i> (Thunb.) Henry ex Rehd., <i>Camellia japonica</i> L.,  <i>Ligustrum sinense</i> Lour, <i>Ligustrum lucidum</i> Ait.,  <i>Nerium indicum</i> Mill.</p>	<p><i>Viola tricolor</i> L.</p>	14	

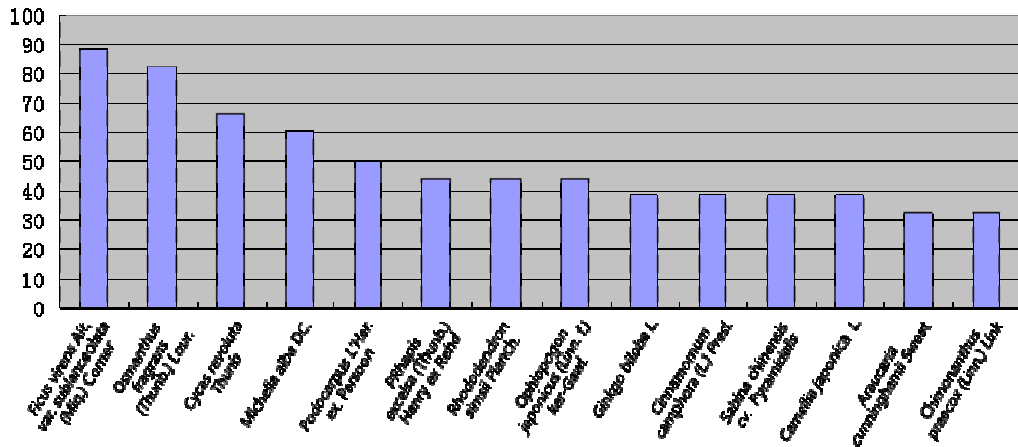


Fig. 1. The most popular plant list of temple gardens in Bayu.

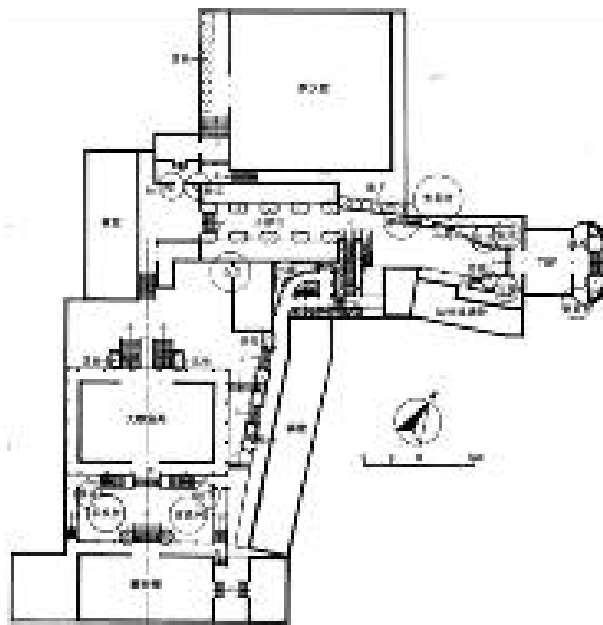


Fig. 2. Site-plan of Luohan Temple (mapping in spot).

quiet atmosphere. The temple paths shuttle in the dense forest, with water flow and birds chirping, highlights its quiet and profound environment. There are various ways of plant disposition in dealing with the internal space environment. From the symmetric planting and linear planting on the solemn central axis to the isolated planting, diffuse planting and group planting in the quiet courtyards, this method of planting makes the temple's religion and its environmental aesthetics complement each other (Ma and Zhang 2013). For example, the lush natural forest outside the Jinyun Temple (Fig. 4) makes it more profound and mysterious. The *Cryptomeria fortunei* Hooibrenk ex Otto et Dietr planted at the end of the path named Xiangdao is tall and erect, which

has an instructional function. At the same time, it is combined with rising steps to make visitors feel the grandeur and quiet in the holy land of Buddhism. The *Sabina chinensis* cv. *Pyramidalis* planted in the front of the Shuangbai house is clean and elegant, which increases the vertical sense of the courtyard and guides the tourists to focus their attention on it, thus creating the buddhist artistic conception of the courtyard.

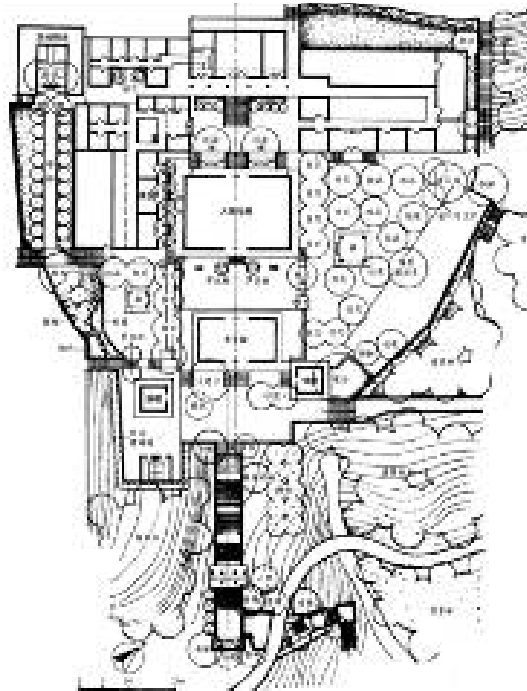
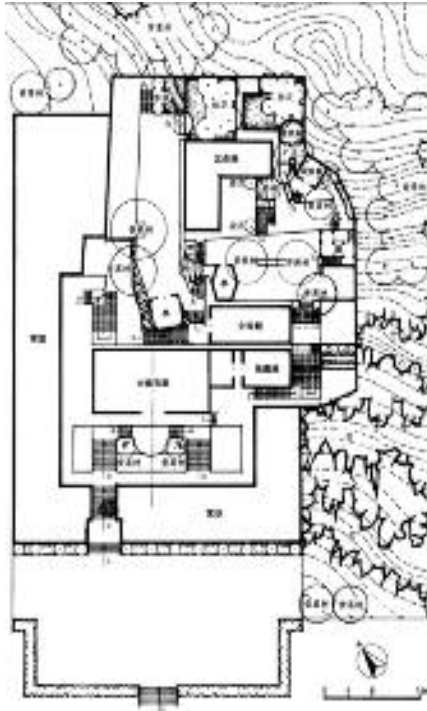


Fig. 3. Site-plan of Ciyun Temple (mapping in spot). Fig. 4. Site-plan of Jinyun Temple (mapping in spot).

The plants of Bayu Temple Gardens have different features in their artistic conception. On the one hand, it is expressed intuitively through the combination of the spatial sequence of plants and the posture and color of the plants (Yan *et al.* 2008). For example, two century-old *Osmanthus* in the courtyard of Shaolong Taoist Temple shows a long history of Taoism, with their branches straight and canopy covered. In addition, the rich and varied colors not only make the tourists feel physically and mentally happy, but also give them an emotional resonance. On the other hand, through the cultural connotation of Buddhism and Taoism contained in plants, the artistic conception of “seeing the mind and becoming a Buddha” is created. It is said that bamboo is the witness of Buddhism spread. Therefore, there are many bamboos in Bayu Temple Gardens, which have far-reaching artistic conception.

As a part of the Temple Garden in China, the Bayu temple gardens' landscape have the common characteristics with other Temples Gardens. However, they are rooted in Sichuan and Chongqing in their long development history. Thus, they are influenced by site conditions and society, and have local characteristics in the use of plants (Yan and Zhou 2013). In this process, due to the lack of historical documents and the deviation of the gardeners' understanding, there are a

series of issues in the process of restoration and reconstruction. According to relevant literature materials (Qiu and Wang 2010, Wang 2010, Gan and Chen 2014, Zong *et al.* 2015), combined with on-site investigation and analysis, the following suggestions are provided: Increase the number of native plants and plants with Buddhist and Taoist cultural implications. Although the native plants used in Bayu Temple Gardens such as *Ficus virens* Ait. var. *sublanceolata* (Miq.) Corner and *Michelia alba* DC. in combination with other plants to make landscaping, the use of native plants is

**Table 3. Main planting styles in temple gardens in Bayu.**

Planting styles	Common species (arranged from highest to lowest frequency of use)
Isolated planting	<i>Ficus virens</i> Ait. var. <i>sublanceolata</i> (Miq.) Corner, <i>Osmanthus fragrans</i> (Thunb.) Lour., <i>Michelia alba</i> DC., <i>Cinnamomum camphora</i> (L.) Presl., <i>Ginkgo biloba</i> L., <i>Cupressus funebris</i> Endl., <i>Ficus religiosa</i> Linn., <i>Robinia pseudoacacia</i> Linn., <i>Magnolia denudata</i> , <i>Acer buergerianum</i> Miq., <i>Acer palmatum</i> Thunb. cv. <i>Atropurpureum</i> , <i>Firmiana platanifolia</i> (L. f.) Marsili, <i>Sabina chinensis</i> cv. <i>Pyramidalis</i> , <i>Araucaria cunninghamii</i> Sweet, <i>Cedrus deodara</i> (Roxb.) G. Don, <i>Salix babylonica</i> , <i>Magnolia grandiflora</i> Linn., <i>Koelreuteria paniculata</i> Laxm, <i>Metasequoia glyptostroboides</i> Hu et Cheng, <i>Grevillea robusta</i> , <i>Punica granatum</i> L., <i>Erythrina variegata</i> Linn., <i>Eriobotrya japonica</i> Lindl., <i>Sapindus mukorossi</i> Gaertn., <i>Sloanea sinensis</i> (Hance) Hemsl., <i>Pteroceltis tatarinowii</i> Maxim., <i>Gleditsia sinensis</i> , <i>Taxus wallichiana</i> var. <i>chinensis</i> (Pilg.) Florin, <i>Ficus microcarpa</i> L. f., <i>Broussonetia papyrifera</i> (Linn.) L'Hér. ex Vent., <i>Liquidambar formosana</i> Hance, <i>Acacia confusa</i> Merr., <i>Celtis sinensis</i> Pers., <i>Ficus elastica</i> Roxb. ex Hornem., <i>Malus halliana</i> Koehne
Symmetric planting	<i>Osmanthus fragrans</i> (Thunb.) Lour., <i>Ginkgo biloba</i> L., <i>Cupressus funebris</i> Endl., <i>Ficus virens</i> Ait. var. <i>sublanceolata</i> (Miq.) Corner, <i>Podocarpus</i> L'Her. ex. Persoon, <i>Cinnamomum camphora</i> (L.) Presl., <i>Araucaria cunninghamii</i> Sweet, <i>Cedrus deodara</i> (Roxb.) G. Don, <i>Michelia alba</i> DC., <i>Sabina chinensis</i> cv. <i>Pyramidalis</i> , <i>Ficus religiosa</i> Linn., <i>Magnolia grandiflora</i> Linn., <i>Koelreuteria paniculata</i> Laxm, <i>Cerasus serrulata</i> (Lindl.) G. Don ex London var. <i>lannesiana</i> (Carri.) Makino, <i>Platycladus orientalis</i> (L.) Franco, <i>Archontophoenix alexandrae</i> (F. Muell.) H. Wendl. et Drude, <i>Melia azedarach</i> L.
Linear planting	<i>Osmanthus fragrans</i> (Thunb.) Lour., <i>Sabina chinensis</i> cv. <i>Pyramidalis</i> , <i>Ficus virens</i> Ait. var. <i>sublanceolata</i> (Miq.) Corne, <i>Michelia alba</i> DC., <i>Podocarpus</i> L'Her. ex. Persoon, <i>Cinnamomum camphora</i> (L.) Presl., <i>Cedrus deodara</i> (Roxb.) G. Don, <i>Salix babylonica</i> , <i>Bischofia javanica</i> Bl., <i>Cerasus serrulata</i> (Lindl.) G. Don ex London var. <i>lannesiana</i> (Carri.) Makino, <i>Livistona chinensis</i> (Jacq.) R.Br., <i>Lagerstroemia indica</i> L.
Group planting	<i>Cinnamomum camphora</i> (L.) Presl., <i>Osmanthus fragrans</i> (Thunb.) Lour., <i>Erythrina variegata</i> Linn., <i>Ficus virens</i> Ait. var. <i>sublanceolata</i> (Miq.) Corne, <i>Michelia alba</i> DC., <i>Ginkgo biloba</i> L., <i>Pinus massoniana</i> Lamb, <i>Bischofia javanica</i> Bl., <i>Amygdalus persica</i> L.
Block planting	<i>Salix babylonica</i> , <i>Osmanthus fragrans</i> (Thunb.) Lour., <i>Cinnamomum camphora</i> (L.) Presl., <i>Metasequoia glyptostroboides</i> Hu et Cheng, <i>Cinnamomum pedunculatum</i> , <i>Citrus maxima</i> (Burm.) Merr., <i>Cryptomeria fortunei</i> Hooibrenk ex Otto et Dietr

generally insufficient. It is recommended to increase native species: *Citrus maxima* (Burm.) Merr., *Eriobotrya japonica* Lindl., *Metasequoia glyptostroboides* Hu et Cheng, *Bischofia javanica* Bl., *Bamboo*, *Musa basjoo*, *Gardenia jasminoides* Ellis, etc. Temple Garden is for the dissemination of Buddhist and Taoist culture. At present, there are few plant species related to Buddhism and Taoism in Temple Gardens. Plants suggested to increase include: *Ficus religiosa* Linn., *Sapindus mukorossi* Gaertn., *Nelumbo nucifera* Gaertn., *Nymphaea tetragona* Georgi, *Jasminum Sambac*, *Reineckia carnea* (Andr.) Kunth, *Crinum asiaticum* Linn. var. *sinicum* (Roxb. ex Herb.) Baker, etc. Which enrich plant color and increase aromatic plants. The color of plants in Bayu Temple Gardens is

mainly green, with a small amount of white, red and yellow. The colors are relatively single, and the seasonal landscape is lacking. It is recommended to increase color leaf plants such as *Liquidambar formosana* Hance, *Acer palmatum* Thunb. cv. *Atropurpureum*, *Elaeocarpus sylvestris* (Lour.) Poir, *Loropetalum chinense* var. *rubrum* Yieh, *Nandina domestica*, etc. The smell of plants can arouse people's boundless reverie and remind people of their memories and imagination of certain events or scenes. Strengthening the use of aromatic plants in Bayu temple gardens is conducive to creating the space of Buddhism and Taoism culture. It is recommended to increase aromatic plants such as *Michelia maudiae* Dunn, *Chimonanthus praecox* (Linn.) Link, *Gardenia jasminoides* Ellis, *Michelia figo*, *Magnolia denudata*, etc. and to protect the ancient tree and highlight the plant characteristics of the temple garden. The existing ancient trees in the temple are the powerful evidence of the historical development of monasteries and the adaptability of the plants in their places. Selecting plants and landscaping around ancient trees to strengthen the historical and plant landscape features of Bayu temple gardens. Supplement plants appropriately enrich the landscape level. From the temple gardens studied, it was found that plants were mainly arbors, and shrubs and ground covers were few. In order to enrich the plant level and improve the ornamental value of plant landscape, it is suggested that the species and quantity of shrubs and ground cover plants should be appropriately increased to achieve the double effects of landscape and ecology.

The Bayu Temple Gardens are not only controlled by the geographical environment, but also influenced by the Buddhism and Taoist culture and the temple space. The protection of the traditional Temple Garden is not only to protect the temple architecture, but also to include the landscape of the Temple and the surrounding environment. This study has carried out the preliminary investigation and analysis to the representative composition of the Bayu Temple Gardens and summed up the current status and characteristics to lay a theoretical foundation for the restoration and reconstruction of plant landscape in Temple Gardens.

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