



中国科学院华南植物园
SOUTH CHINA BOTANICAL GARDEN, CAS

温室群参观手册

CONSERVATORY VISIT MANUAL

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温室游园须知

Instructions of Touring the Conservatories

✦ 华南植物园温室群景区是亚洲最大型的植物景观温室群，是广州市标志性建筑和最富特色的园林景观。为给您营造一个和谐、优美的游园环境，请您在游览时注意以下事项，与我们携手共创文明景区。

1. 全年开放，咨询、预约电话：020-85232037，85231556。
2. 请购票入园，主动出示入园票证。门票每张限一人一次使用，副券自行撕下无效，门票售出，恕不退还。
3. 爱护园内环境卫生，自觉维护水体清洁，不乱丢杂物、纸屑；不随地吐痰；垃圾和废弃物品请及时放入垃圾桶内，切勿随地抛弃。
4. 爱护植物，请勿攀折花果；请勿践踏草地；勿用硬物敲击玻璃展示箱；不要损坏园林景物、雕塑等。
5. 注意游览安全，勿在湖边戏水；不要在水边、陡坡、仙人掌丛中等危险区域玩耍和照相；途经陡坡、河道、瀑布时请勿拥挤，注意慢行，慎防滑倒。
6. 严禁携带易燃、易爆等危险品以及危险器具进入温室；除吸烟区外，温室内严禁吸烟和使用明火。
7. 遇到紧急情况时，请您服从工作人员的疏导。
8. 游览过程中遇到问题，请与我们联系，我们将为您排忧解难。

投诉电话：020-85232037 保卫电话：020-37250983
温室电话：020-85232311 医 疗 室：020-85232432

✦ The landscaped conservatory group of South China Botanic Garden is the largest-scaled conservatories throughout Asian countries. It has become representative architecture and the most characteristic horticultural scenery in Guangzhou. To ensure you have a harmonious and exquisite sightseeing environment, please read the following instructions when on tour with us, join us in creating a civilized scenic spot.

1. Access is available all year around, For enquiries and advance booking, please contact us at 020-85232037, 85231556.
2. Admission fee is required; please show your ticket prior to entering. One ticket is limited to one person for one time, tickets are not refundable, ticket stub is invalid if torn off by yourself.
3. Care the environmental sanitation inside the conservatories, maintain the water clean, no trash, no spitting, and please dispose your unwanted belongings properly by throwing into trash bins.
4. Cherish the plants, no twisting or picking the flowers and the fruits, no trampling on the meadow, no tapping on the exhibitory glass trunk with any hard objects, please do not damage the Garden's landscape, sculpture and so on.
5. Flammable, explosive, and other dangerous articles are strictly forbidden, smoking and open flame are also forbidden except at smoking area.
6. Please follow the staff's lead to divert in the case of an emergency situation.
7. Take care of your own safety, playing and photographing at the water edge, steep slope, and cactus cluster are dangerous and are not permitted, watch your steps, do not crowd while passing the steep slope, watercourse and waterfall, please slow down avoiding slipping over.
8. If you encounter any trouble during the tour, please let us know, we will try best to help out.

Complain: 020-85232037 Security: 020-37250983
On-site Greenhouse: 020-85232432 Clinic : 020-85232311

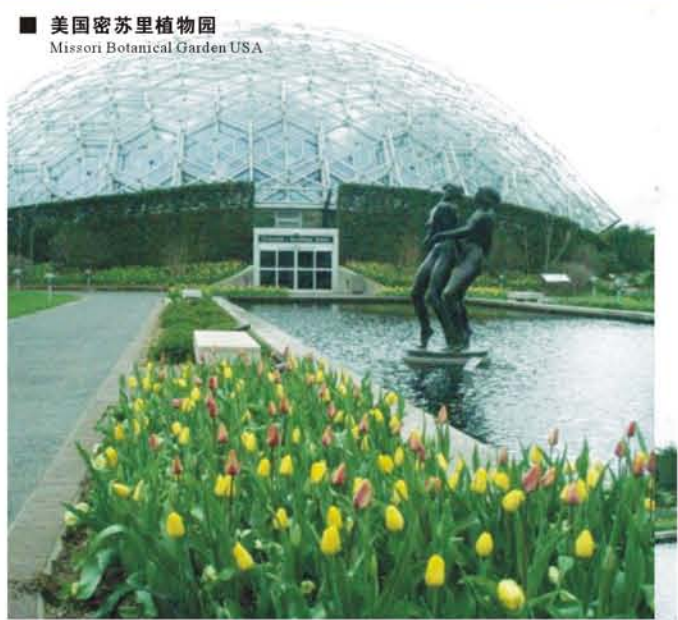


前言 Foreword

展览温室群共收集植物3500余种，为了让参观者更好地了解其科学研究与科普旅游价值，在广州市发展与改革委员会“服务业发展引导资金|”等资助下，我园开展温室解说系统建设。前期内容包括植物鉴定，资料撰写，翻译，摄影，编辑，设计等诸多繁重工作。陈磊、陈玲、陈新兰、丁朝华、黄磊、黄瑞兰、黄向力、季申芒、蒋厚泉、柯萧霞、匡延凤、李碧秋、黎昌汉、李德、李冬梅、李素文、李玉勋、梁其荣、廖景平、廖利芳、林乔生、马玲、欧阳沛、彭晓明、苏建中、田代科、文香英、王春南、王少平、王曦、韦强、吴梅、吴兴、谢丽青、谢烈贤、谢振华、叶育石、蚁伟民、禹玉华、张静峰、张少华、张奕奇、邹丽娟等做了大量具体工作。此外，不少人员也为本项目做了许多工作，未能一一列举。

根据游客的需求，我们在以上人员工作的基础上，挑选部分资料，加以适当补充，编辑了本参观手册。

We have collected more than 3,500 taxa in the conservatories. In order to help visitors to know better about its value in scientific research and science tour, we carried out the interpretation system construction of the conservatories under the foundation of ‘Guide Foundation for Service Industry Development’ from the Development and Reform Commission of Guangzhou. Our colleagues including CHEN Lei, CHEN Ling, CHEN Xinlan, DING Chaohua, HUANG Lei, HUANG Ruilan, HUANG Xiangli, JI Shenmang, JIANG Houquan, KE Xiaoxia, KUANG Yanfeng, LI Biqu, LI Changhan, LI De, LI Dongmei, LI Shuwen, LI Yuxun, LIANG Qirong, LIAO Jingping, LIAO Lifang, LIN Qiaosheng, MA Ling, OUYANG Pei, PENG Xiaoming, SU Jianzhong, TIAN Daike, WEN Xiangying, WANG Chunnan, WANG Shaoping, WANG Xi, WEI Qiang, WU Mei, WU Xing, XIE Liqing, XIE Liexian, XIE Zhenhua, YE Yushi, YI Weimin, YU Yuhua, ZHANG Jingfeng, ZHANG Shaohua, ZHANG Yiqi, and ZHOU Lijuan etc. have done lots of preliminary work such as plant identify, document writing, translation, photograph, editing, design etc. Besides, many other unlisted people have helped us a lot, we highly appreciate them. To accommodate the requirements of visitors, we selected some documents and made this handbook.



温室—植物的宫殿

Conservatory – a Palace for Plants

温室是植物园、城市公园以及国家公园、自然保护区等机构的特有设施。一些享誉世界的植物园，投入巨大的人力、物力，聘请著名设计师，利用最新科学技术成果，建造集优美的艺术形式与理想的植物生长环境于一体的建筑。并经历艰苦的野外采集，收集丰富的植物物种，加以科学细致的栽培管理，形成植物种类丰富多彩，景观独特，设备先进完善的大型展览温室，堪称植物宫殿。温室利用特有的条件，把一些重要植物和世界各地的奇花异卉集中栽培保护和展示，起到活标本馆的作用。因此，展览温室既是重要的物种收集保护基地，又是科普宣传的展览窗口，已经成为游客心目中最具魅力的地方。

A conservatory is a particular facility generally found in botanical gardens, public parks, natural reserves and suchlike institutions. Lots of rare and exotic plants are conserved and exhibited in conservatory for sightseeing, public education and plant science learning. An exhibitory conservatory is not only a scientific base for conserving species but also a display window for knowledge dissemination.

World-renowned botanical gardens usually invest heavily in manpower and material resources, hire outstanding designer, and employ the latest scientific and technological achievements to build such a great steel architecture with artistic form and also to create an ideal environment for plants. Meanwhile, they screen out a quality collection of plant species after in-depth field investigation, then cultivate and manage them scientifically and with meticulous care. With special profile, advanced equipments and richness in plant species, the conservatory may be rated as Plant Palace.



世界植物奇观—华南植物园温室群景区

从高空俯瞰花城，四朵巨大的“木棉花”静谧地盛开在华南植物园。“漂在水上的木棉花”艺术地再现了亚洲、非洲与美洲热带雨林和亚马逊河谷雨林的神秘与奇特的生物景观；非洲、美洲、澳洲和中国沙漠植物簇拥着“一柱擎天的武伦柱”，营造了世界著名的三大沙漠区风情和中国西域大漠的雄风古韵；南极、北极植物掩藏于高山、亚高山植物世界，显现了遥远国度“遗世独立”的世外桃源；“水下森林”环抱着“奇花异果”，展现了植物世界的缤纷与纷繁。热带雨林室、沙漠植物室、高山/极地植物室、奇异植物室、植物水族馆与室外稀树草地景观遥相呼应，浑然一体，从热带雨林到高山植物、从南极北极植物到沙漠植物景观，从奇花异果到水下植物王国，展示了博大精深的世界植物奇观和赋予美丽传说的植物世界，诠释了世界植物科学之旅的神秘与梦幻。景区总占地面积75000m²，共收集植物种类约3500种。是广州市标志性建筑和最富特色的园林景观，是亚洲乃至世界最大型的植物景观温室群。

A World of Plants-SCBG Conservatory

In the overlook view of Guangzhou, four giant kapok flowers bloom quietly in South China Botanical Garden (SCBG). The 'Floating Kapok Flowers' artistically exhibits a mysterious and distinctive scenery of the tropical rainforest of Asia, Africa, America and Amazon River Valley; the Mexican giant cactus (*Pachycereus pringlei* Britton & Rose) is surrounded by various desert plants from Africa, America, Australia and western China, and thus to construct a splendid desert landscape throughout the world; alpine & subalpine plants with polar plants hidden inside attract visitors to travel in the amazing distant and isolated world; exotic plants circled by the Aqua forest Aquariums present the marvelous variety and complicity of the plant kingdom. The four conservatories, Tropical Rainforest Conservatory, Desert Plant Conservatory, Alpine & Polar Plant Conservatory, and Exotic Plant Conservatory & Aqua-forest Aquariums, combining with the surrounding savanna, create a spectacular landscape entitled 'A World of Plants'. In these conservatories, almost all the typical plants are on show and all the mysteries and fantasies in the plant kingdom are unveiled. The conservatories cover a total area of 7.5 ha. and conserve more than 3,500 plant species. It is not only the landmark architecture and the most representative landscape of Guangzhou, but also the largest conservatory group in Asia and even all over the world.

温室群景区导游图

A World of Plants-SCBG Conservatory Tour Map



温室游览参观路线

Customized Touring Routes of the Conservatories

1、一小时路线:

- 1) 热带雨林室主入口→河谷雨林区→雨林文化区→空中栈道→高山/极地植物室→沙漠植物室→亚洲雨林区→非洲雨林区→美洲雨林区→热带雨林室主入口→奇异植物室→植物水族馆
- 2) 热带雨林室主入口→奇异植物室→雨林文化区→沙漠植物室→高山/极地植物室→中心瀑布区→亚洲雨林区→非洲雨林区→美洲雨林区→热带雨林室主入口→奇异植物室→植物水族馆

2、二小时路线:

- 1) 热带雨林室主入口→雨林奇观区→水生植物区→奇异植物区→雨林文化区→空中栈道→观瀑亭→高山/极地植物室→沙漠植物室→亚洲雨林区→中心瀑布区→非洲雨林区→美洲雨林区→热带雨林室主入口→奇异植物室→植物水族馆
- 2) 热带雨林室主入口→雨林奇观区→河谷雨林区→奇异植物区→雨林文化区→沙漠植物室→高山/极地植物室→亚洲雨林区→中心瀑布区→非洲雨林区→观瀑亭→空中栈道→美洲雨林区→热带雨林室主入口→奇异植物室→植物水族馆

3、三小时路线:

- 1) 热带雨林室主入口→雨林奇观区→水生植物区→奇异植物区→雨林文化区→空中栈道→河谷雨林区→观瀑亭→高山/极地植物室→沙漠植物室→亚洲雨林区→咖啡室(品尝咖啡半小时)→中心瀑布区→非洲雨林区→美洲雨林区→热带雨林室主入口→奇异植物室→植物水族馆
- 2) 热带雨林室主入口→雨林奇观区→水生植物区→奇异植物区→雨林文化区→咖啡室(品尝咖啡半小时)→沙漠植物室→高山/极地植物室→亚洲雨林区→中心瀑布区→非洲雨林区→观瀑亭→空中栈道→河谷雨林区→美洲雨林区→热带雨林室主入口→奇异植物室→植物水族馆

1、One-hour Route:

- 1) Main Entrance → Ravine Rainforest Section → Rainforest Culture Section → Aerial Plank Road → Alpine & Polar Plant Conservatory → Desert Plant Conservatory → Asian Rainforest Section → African Rainforest Section → American Rainforest Section → Main Entrance → Rare and Exotic Plant Conservatory → Aqua-Forest Aquarium
- 2) Main Entrance → Fantastic Plant Section → Rainforest Culture Section → Desert Plant Conservatory → Alpine & Polar Plant Conservatory → Central Waterfall Section → Asian Rainforest Section → African Rainforest Section → American Rainforest Section → Main Entrance → Rare and Exotic Plant Conservatory → Aqua-Forest Aquarium

2、Two-hour Route:

- 1) Main Entrance → Rainforest Spectacle Section → Aquatic Plant Section → Fantastic Plant Section → Rainforest Culture Section → Aerial Plank Road → Waterfall View Pavilion → Alpine & Polar Plant Conservatory → Desert Plant Conservatory → Asian Rainforest Section → Central Waterfall Section → African Rainforest Section → American Rainforest Section → Main Entrance → Rare and Exotic Plant Conservatory → Aqua-Forest Aquarium
- 2) Main Entrance → Rainforest Spectacle Section → Ravine Rainforest Section → Fantastic Plants Section → Rainforest Culture Section → Desert Plant Conservatory → Alpine & Polar Plant Conservatory → Asian Rainforest Section → Central Waterfall Section → African Rainforest Section → Waterfall View Pavilion → Aerial Plank Road → American Rainforest Section → Main Entrance → Rare and Exotic Plant Conservatory → Aqua-Forest Aquarium

3、Three-hour Route:

- 1) Main Entrance → Rainforest Spectacle Section → Aquatic Plant Section → Fantastic Plant Section → Rainforest Culture Section → Aerial Plank Road → Ravine Rainforest Section → Waterfall View Pavilion → Alpine & Polar Plant Conservatory → Desert Plant Conservatory → Asian Rainforest Section → Cafe (Half-hour Coffee Break) → Central Waterfall Section → African Rainforest Section → American Rainforest Section → Main Entrance → Rare and Exotic Plant Conservatory → Aqua-Forest Aquarium
- 2) Main Entrance → Rainforest Spectacle Section → Aquatic Plant Section → Fantastic Plant Section → Rainforest Culture Section → Cafe (Half-hour Coffee Break) → Desert Plant Conservatory → Alpine & Polar Plant Conservatory → Asian Rainforest Section → Central Waterfall Section → African Rainforest Section → Waterfall View Pavilion → Aerial Plank Road → Ravine Rainforest Section → American Rainforest Section → Main Entrance → Rare and Exotic Plant Conservatory → Aqua-Forest Aquarium



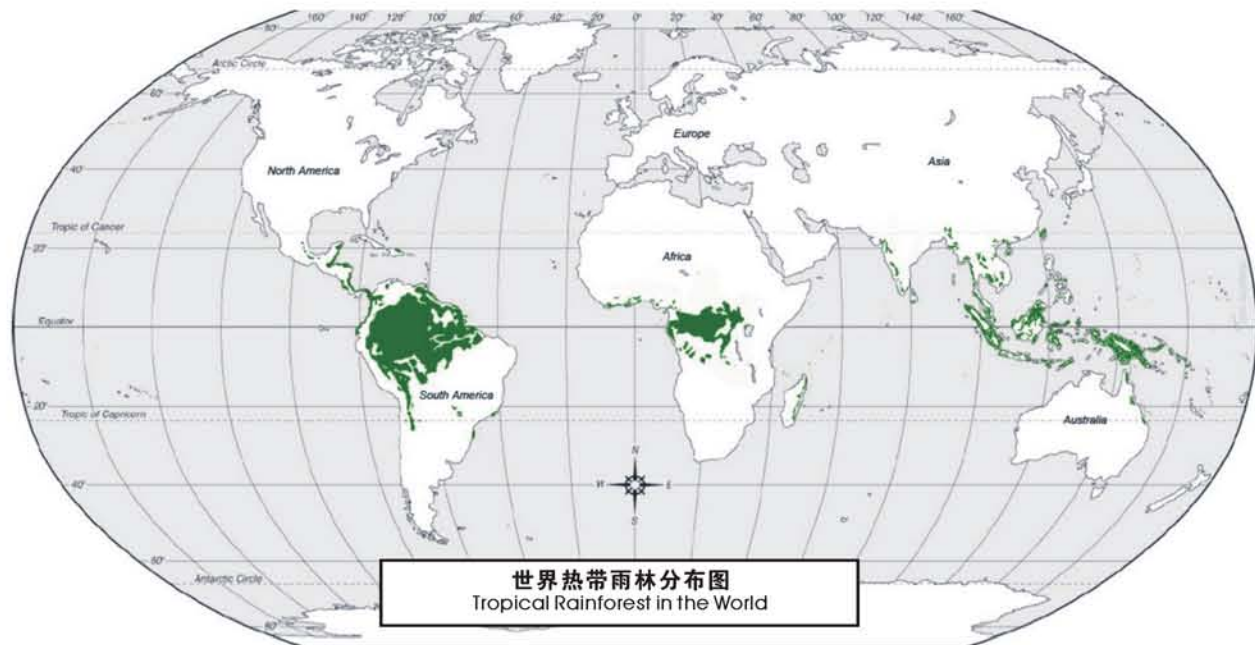
【热带雨林室】

Tropical Rainforest Conservatory

热带雨林室高27.4 m，占地面积7987m²。1000多种热带植物来自世界各地，姿态万千、色彩缤纷，营造了雨林奇观区、水生植物区、奇趣植物区、雨林文化区、雨林群落区、中心瀑布区和河谷雨林区七大主题景区，演绎了神秘的热带雨林世界。高耸云天的望天树、满腹毒汁的见血封喉、突降暴雨的雨树、载人如舟的王莲、酸尽甘来的神秘果、吐雾吞烟的吐烟花、粗壮神奇的面包树、饱含柴油的油楠、暗藏杀机的茅膏菜，济济一堂；绚丽的空中花园、多姿的独木成林、别有洞天的空心树、秀美的老茎生花、厚壮的板根，多姿多彩；汇集绞杀的傲视群雄、巨藤的密林穿梭、寄生的巧取豪夺、腐生的蝇蝇苟苟、附生的高枝攀附、共生的和谐共存，琳琅满目。

Tropical rainforest conservatory, with an area of 7987m² and the maximum height of 27.4 m. This conservatory, conserving and exhibiting more than 1000 plant species from all over the world, is divided into 7 sections with separate themes: typical Rainforest Spectacle Section, tropical aquatic plant section, Fantastic Plant Section, rainforest culture section, rainforest community section, central waterfall section and Ravine Rainforest Section. Visitors can enjoy mysterious and various plants in this conservatory, such as *Parashorea chinensis*, rain tree(*Samanea saman*), Victoria water lily(*Victoria amazonica*), miracle fruit(*Synsepalum dulcificum*), smoking-flower plant(*Pellionia repens*), Spanish moss(*Tillandsia usneoides*), breadfruit tree(*Artocarpus incisa*), oil sindora (*Sindora glabra*), pitcher plant (*Nepenthes mirabilis* (Lour.) Druce), sundews plant(*Drosera sp.*), upas tree(*Antiaris toxicaria*), strangler figs(*Ficus sp.*), etc. There are also attracting phenomenon of plants to survive the rainforest habitat such as parasitic plants living on other plants, saprophytic plants living on organic matter, symbiotic plants dwelling together, buttress roots upholding high trees, prop roots making a single-tree forest, lianas weaving nets in the canopy, epiphytic plants flowering in the air, etc.





世界热带雨林分布图
Tropical Rainforest in the World

【世界热带雨林】

Tropical Rainforest in the World

热带雨林主要分布于赤道两侧南北纬 20° 范围内的热带森林，总面积约 830万km^2 ，划分为美洲热带雨林区、非洲热带雨林区和印度-马来热带雨林区等三大区域。热带森林内植物群落层次错综复杂，乔木、灌木、草本、苔藓和地衣等共同组成了扑朔迷离的各种生态系统，常年湿润高温、多雷雨的热带气候，几乎每天午后都下暴雨，而雨水受到树冠层层拦截，造成林内滴水不断、似乎总在下雨的景象，“热带雨林”之名即源于此。由于终年高温多雨，不存在季相变化，植物可全年生长发育，物种极为丰富，仅占6%陆地表面积却孕育了地球上多达50%的物种，热带雨林真正成为生物的乐园。

The tropical rainforests are located near the equator between 20° N and 20° S latitude within the tropical climate region, occupying a total area of 8.3 million km^2 . Global rainforests are mainly sectioned as American tropical rainforest zone, African tropical rainforest zone and India-Malaysia tropical rainforest zone. Layers of plants diversity within tropical forests are of high complexity, featuring trees, shrubs, herbs, mosses and lichens, and all formed a bewildering variety of ecosystems. Tropical rain forests are characterized by hot and humid tropical climate, and lots of thunderstorms all year around. Heavy rainfall happens almost every day afternoon, and rainwater is intercepted by different levels of canopy layers, resulting in continuous dripping, making the scene look like it is always raining, that is why the name "tropical rain forest" stems from. There is no season alternation as the year-round hot and rainy weather, plants can grow and develop all the time, so it is extremely rich in plants diversity. Although tropical rainforest covers only about 6% of the land surface on Earth, it provides as much as 50% of the world's plant and animal species. Tropical rain forest is a truly biological paradise.

【拯救热带雨林】

Saving the Rainforests

在人们对物质生活无穷无尽的追求中，大片的热带雨林轰然倒下。热带雨林每年以约一千七百万公顷的面积锐减。几千年前曾经覆盖了地球陆地表面积12%的热带雨林，现在仅仅剩下了6%，超过三分之二的热带雨林成了残存在地球上的碎片。热带雨林，这个曾经为人类乃至整个生物界提供了无尽资源的古老植物群，如果消失，无论对地球还是对人类无疑将是一场毁灭性的灾难。为了让这个灾难不会成为现实，让我们行动起来，从我做起，从现在做起，为保护珍贵的热带雨林而贡献一份自己的力量！

Rainforests have been suffered catastrophic damages due to mankind's endless pursuit of material life, thus the area covered by rainforests around the world is shrinking. It is estimated that about 17 million hectares of rainforest are destroyed every year. Thousands of years ago, tropical rain forest covered 12% areas of the earth land surface, which has provided habitat for 50% to 90% of the world's plant and animal species, and has vital implications on the global environment and climate. However, the coverage rate now has dropped to only 6%, over two-thirds of the remaining rainforests have become debris scattering on earth land, the biologists have estimated that large numbers of species are being driven to extinction due to habitat loss along with the destruction of the rainforests. It is high time that we should pay more attention to this issue and take actions to protect the valuable rainforests, thereby save the future of us and the earth.



【雨林奇观区】

由前景弧形观景平台和漫滩、中景岛屿特色大树景观、远景爬满茂密热带植物的石壁和隐约可见的最高山峰组成，构成草丛、漫滩、岛屿和远山层层递进的景观效果。葱郁的雨林岛屿上矗立着绞杀、板根、独木成林等典型热带雨林景观，奇特而伟岸的身姿彰显出热带雨林的生存妙计和争霸热带雨林的奇谋绝招。此区还展示了气生根、支柱根、附生、巨藤、老茎生花结果、滴水叶尖等热带特色景观，让游人能领略千奇百怪的雨林现象，聆听热带雨林的生命颤音。

Rainforest Spectacle Section

This section is composed of three scenic layers, an arc sight-seeing platform and floodplain as the close scene, an island with high trees as the medium scene, a peak and cliff with thick coverage of plants as the far scene, bringing a spatial layer-upon-layer impression from the grass clusters, floodplain, island and peak. Typical spectacles in tropical rainforest like strangler plants, buttress roots and single-tree forest are presented on the shady island, revealing the strategies and equipments of plants to survive the tough environment. In this section there are many other peculiar exhibits, such as aerial roots, prop roots, epiphytes, lianas, cauliflory, drip tips and so on, telling visitors how plants adapt to the habitat in tropical rain forest.

■ 植物老来俏—老茎生花结果

Cauliflory

在温带和寒带地区，树木的花果都生在一、二年生的枝条上。进入热带雨林，一簇簇鲜花傲放于老枝或树干上，一串串果实甚至长在树干的基部，这就是热带雨林的特殊现象“老茎生花结果”。“老茎生花结果”是由于热带雨林茂密的“分层结构”，处于雨林下层的乔木得不到充足的阳光，无法让鲜花高占枝头吸引目光，为了延续生命繁育后代，就把靓丽的花朵下移至老枝和树干上，让昆虫和蝙蝠们为其授粉或传播种子。“老茎生花结果”是某些树木在热带雨林环境下的一种生存适应对策。老茎生花结果的代表植物有火烧花 (*Mayodendron igneum*(Kurz)Kurz)、波罗蜜 (*Artocarpus heterophyllus* Lam.)、大果榕 (*Ficus auriculata* Lour.)等。

In the temperate zone and frigid zone, almost all the woody plants flower on new growth or young leafy shoots. However, in tropical rainforest some trees have the remarkable ability to flower and fruit on the branches and trunks or even the base of the trunk. This is called cauliflory which means flower or fruit on the stem. Cauliflory is an adaptive character to the tropical rainforest environments, particularly resulting from the layer structure. Trees in the understory layer develop cauliflory to facilitate pollination or seed dispersal by insects or bats which would be able to reach the flowers or fruits if they were born on the branches or trunks instead of the tree crown. Cauliflory is an ecological adaptation of some trees in tropical rainforest. *Mayodendron igneum* (Kurz)Kurz, Jackfruit tree(*Artocarpus heterophyllus* Lam.), and *Ficus auriculata* Lour. are typical plants with cauliflory.



波罗蜜 *Artocarpus heterophyllus*



火烧花 *Mayodendron igneum*



■ 雄伟壮观的板根

Buttress Roots

热带雨林中的一些巨树，通常在树干基部由不定根延伸出形如板墙状雄伟壮丽的翼状结构——板根。大的板根可达10多米高，延伸10多米长，蔚为壮观。

板根现象是热带雨林乔木最突出的特征，也是早期被欧洲探险家们描绘得最为神秘玄妙的热带雨林现象。板根的形成与植物根系和水热等环境条件紧密相关。热带雨林里，一些乔木身躯高大粗壮，十分沉重，而且大多是浅根植物。为了解决“头重脚轻根底浅”的问题，避免被热带雨林的暴风骤雨推倒，这些高大乔木的侧根外向异常次生长，形成辐射状的附加支撑结构。板根一般3—5条，以最为负重的一侧最为发达。

Buttress roots is the most distinctive feature of high trees in tropical rain forest and also the most mysterious phenomenon described by the early European explorers. Buttress roots are giant and wall-like roots, extending radially from the base of the trunk. They can grow amazingly up to 10 meters tall and long and their formation is closely related to environmental conditions and climate. In tropical rainforest, many tall trees have stout and heavy body and shallow roots, but they must experience the huge storms from the rainforest. To adapt to rainforest environment, the lateral roots of those tall trees unusually grow outward and form some additional radial structures to support themselves. Many trees develop 3-5 buttresses above the ground that flank the trunk on either side. They give the tree an appearance of a rocket. Buttress roots can provide greater stability, prevent the tree from falling in the violent storms and help gather more nutrients.



■ 独木成林奇观

Single-tree Forest

热带雨林高温高湿，一些树木能从茎干或树枝上长出不定根，从潮湿的空气中吸收水分、营养和呼吸空气，此即气生根。随着树木的生长，这些不定根逐渐向下延伸，当触及土壤时，继续增粗，变成支柱根。支柱根一方面支撑树木庞大的躯干和茂密的枝叶，另一方面加强水分和无机盐的吸收，促进植株生长和扩展树冠，逐渐形成众多粗壮的支柱根矗立于庞大的树冠下，犹如很多树木生长在一起，宛如一片森林，成为奇特的“独树成林”热带雨林奇观。

常见的榕属植物细叶榕(*Ficus microcarpa* L.f.)、高山榕(*Ficus altissima* Bl.)、印度胶榕(*Ficus elastica* Roxb. ex Hornem.)等都具有发达的支柱根并形成“独木成林”奇观。

In the moist tropical rainforest, some trees can develop adventitious roots from their trunks or branches to help absorb water, nutrients and breathe air. These aboveground roots are called aerial roots. The aerial roots grow and extend downwards, after reaching the ground, they accelerate to grow thicker and stronger so that they brace the tree and become prop roots. With age, these prop roots grow into thick woody trunks, which can become indistinguishable from the main trunk. So many root-deriving trunks growing together under a huge crown of the original tree look rather like a real forest. Therefore, this phenomenon is called "Single-tree Forest".

Some common ficus trees like Chinese banyan (*Ficus microcarpa* L. f.), council tree (*Ficus altissima* Bl.) and rubber fig (*Ficus elastica* Roxb. ex Hornem.) are rich in aerial roots and easy to develop into single-tree forest.



■ 支柱根

Prop Root

某些植物能从茎干或近地表的茎节上，长出一些不定根。不定根向下深入土中，能起到支持植物直立生长的作用，这类不定根被称为支柱根。支柱根是植物的辅助根系，不仅能吸收水分和无机盐，而且因其发达的机械组织能起到稳固茎干的支持作用。热带植物的支柱根常形成“树瀑”或“树帘”，成为石灰山雨林中的奇观。除这些热带树木外，一些生长在海边的红树林植物也能从茎干或枝节上长出不定根，如：一棵红树林植物能从茎基部伸出多达30条拱形下弯的支柱根，从不同方向支撑着树干，使其在狂风巨浪面前也能表现从容淡定。数一数，这棵分布于亚洲和大洋洲热带海岸的露兜树（*Pandanus tectorius*）身上有多少条支柱根？

Some plants can develop adventitious roots from the lower part of stem or trunk that grows down to the ground. These roots can provide a plant with extra support thus they are named "prop roots". Prop root can not only absorb water and mineral salts but also support the stem above the ground. The prop roots of tropic plants usually grow together to resemble a waterfall or curtain, which present a spectacular scene in the limestone areas. Besides some tropical trees, the coastal mangrove tree can also develop prop roots from the stems or nodes. A single mangrove tree can produce as many as 30 prop roots from the stem which bend downwards to uphold the plant from all directions and enable the plant to withstand strong tides and wind.

■ 奇妙的绞杀现象

Gallows in Rainforest — Strangler Plants

占地球陆地表面6%的热带雨林承载着地球上多达50%的物种，超级的物种密度，使看似寂静的热带雨林上演了异常激烈的生存竞争！绞杀现象是热带雨林的一道奇特景观，更是热带雨林典型的生存竞争案例。

绞杀植物的种子，通过鸟类粪便或者被风刮到被绞杀植物上，在适宜的条件下萌发。其根植入被绞杀植物以吸取养料和水分，气生根逐渐增多、分枝交汇形成强大的网状系统，把被绞杀植物团团围绞；并且迅速向下生长植入土壤，获取更多的营养和水分形成强大的支撑系统。若干年后，被绞杀植物因生活空间限制和营养不良而逐渐枯萎逝去，绞杀植物取而代之成为一株独立的参天大树。

Competition for survival in overcrowded tropical rainforest is intense and even deadly. Strangler is a typical case and can be commonly seen in the tropical rainforest.

Seeds of strangler plants are brought and deposited on branches of host trees by birds or wind. The seeds sprout and develop roots either to absorb water and nutrients from the host tree or to extend downwards to the ground. The roots wrap around the host tree and increases in diameter rapidly once they reach the soil. Over years later, the roots fuse to form a massive network that strangles the host. Until it die and get decayed. Then the strangler itself stands as a massive "columnar tree" with a hollow pseudo-trunk of roots.





【水生植物区】

水生植物区以热带非洲和热带美洲的水生植物展示了水中居民的娇羞花朵、婀娜身姿，描绘着水中森林的梦幻国度，以中国热带滨海植物营造海岛葵林椰风的美丽画卷。该区设置有水面上行走的木栈道和贴近河道入口的拱桥2条游览参观线路，拉近了游人与水生植物的距离，增加了更加丰富的行走体验和游览乐趣。该区划分为热带睡莲、王莲和岸际水生植物区，主要展示热带水生植物的多样性；池边配置造型奇特的椰子树、成片的棕榈林、以及红槟榔、散尾葵、鹧鸪麻、牛蹄豆、琼崖海棠等热带雨林岸边主要植物类群，组成具有明显南国风情的水路一体化立体雨林水景观。

Aquatic Plant Section

This section exhibits various aquatic plants from tropical Africa and America, which introduce the habits and elegance of the fantastic underwater dwellers. In this section, an island with tropical palm manner is constructed with coastal plants from South China. Two tour routes which are separately a woody plank road above the water and an arched bridge near the entrance, are designed for visitors to get closer to the plants and to enjoy the fun of walking.

This section is divided into three subsections which exhibit separately waterlilies, Victoria waterlilies and shore plants, revealing the diversity of tropical aquatic plants. Coconut palm (*Cocos nucifera*), areca palm (*Areca catechu*), butterfly palm (*Chrysalidocarpus lutescens*), *Kleinovia hospita*, *Pithecellobium dulce*, *Calophyllum inophyllum* are planted on shore to introduce the typical offshore communities. This section presents a complex water-and-shore landscape with a remarkable manner of South China.

■ 碧叶如盘可载人的王莲

Victoria Water Lily

王莲(*Victoria spp.*)睡莲科(Nymphaeaceae)，为多年生大型水生草本，是著名的庭园观赏植物。叶浅盘状，直径60~180厘米，可达2~4米，大型奇特，是世界上水生有花植物中最大叶片，网状叶脉粗壮，结构特别而坚固，叶缘向上翻卷，犹如铺在水面的硕大碧玉盘，可载约50千克的重物，堪称叶中大力士。花硕大美丽，直径达30厘米，可在两天内花开二度。果实内种子可达五六百粒之多，种子形似豌豆，含丰富淀粉，可食用，南美洲人称之为“水玉米”。

Victoria water lily (*Victoria spp.*) is a giant water lily in the family Nymphaeaceae from tropical South America. It has the largest leaves in aquatic plants which grow to as large as 2-4 meters in diameter. The leaves, with edges rolling up, float on the water surface like shallow basins. The veins on leaves are thick and strong. Which are like the framework of an umbrella. Therefore, the leaves have perfect buoyancies and could bear stuff as heavy as 50 kilograms, like an excellent weightlifter.

Victoria water lily bears large and beautiful flowers which can grow to 30 cm in diameter and blooms twice within two days. A fruit will produce 500 to 600 seeds, which are as big as beans. The seeds are rich in starch, thus, the local folks call them "corn in the water". Due to the distinctive leaves and showy flowers, Victoria water lily is a popular ornamental plant.



■ 埃及古文明的见证—纸莎草

Papyrus Sedge

纸莎草 (*Cyperus papyrus* Linn.), 莎草科 (*Cyperaceae*) 多年生草本挺水植物, 丛生, 茎秆三棱形不分枝。茎顶放射状簇生浓密的细长叶, 宛如撑开的伞骨, 故又称伞草。茎的芯髓编织紧压后可制莎草纸, 因而得名。

开罗附近法老墓中绘制精美的莎草纸画, 它由原产非洲及中东沼泽地的纸莎草制成, 距今5000多年, 比中国造纸术早3000多年, 堪称世界上最古老纸品的古埃及莎草纸。莎草纸曾是地中海地区通用的书写材料, 使古埃及大量文献得以保存至今而成为古埃及文明的重要组成部分。

Papyrus sedge(*Cyperus papyrus* Linn.), is a perennial emerged herb in the sedge family *Cyperaceae*. It features a grass-like clump of triangular green stems that rise up from thick, woody rhizomes. Each stem is topped by a dense cluster of thin, bright green, thread-like leaves. Papyrus sedge is native to Africa and Middle East. It was widely cultivated and used by Egyptians, most famously for making papyrus paper. Therefore, "papyrus" is believed to be the origin of the word "paper". It promoted the progress of human civilization because the papyrus paper was used as the writing material in the Mediterranean area so that the history of ancient Egypt could be recorded and passed down.

■ 植物“睡美人”—睡莲

Water Lily

睡莲 (*Nymphaea spp.*), 睡莲科 (*Nymphaeaceae*), 花叶浮于水面, 叶圆盾形, 花有白、红、粉、黄、蓝、紫等色, 如凌波仙子俏立水面。在古希腊和古罗马, 睡莲与中国的荷花一样, 被视为圣洁和美丽的化身; 在新约圣经中, 也有“圣洁之物, 出淤泥而不染”之说, 睡莲属植物的学名 *Nymphaea* 意为居住在水乡泽国的仙女。一些睡莲有“睡眠”习惯, 子时开午时闭或者午时开子时闭, 故又名“子午莲”, 但大多数睡莲午时开放, 傍晚闭合。

睡莲大部分产北非和东南亚热带地区, 少数产于南非、欧洲和亚洲的温带和寒带地区。

Water lily (*Nymphaea spp.*) is an aquatic herbaceous perennial in the family *Nymphaeaceae*, with leaves and flowers floating on the water. The leaves are shield-like and flowers are colorful, colorful in white, red, pink, yellow, blue and purple. In ancient Greece and Rome, water lily was regarded as the embodiment of beauty and sanctity. In the Bible, water lily was also deemed as a "holy and pure" object. The latin name *Nymphaea* means a fairy living in the water. Some water lilies have habits of sleeping for they open at midday as waking up and close at midnight as falling asleep. Most water lilies open at noon and close at dusk. Water lily originates in tropical areas in North Africa and Southeast Asia, and a few varieties originate in South Africa, Europe and the temperate zone of Asia.



■ 水罨粟

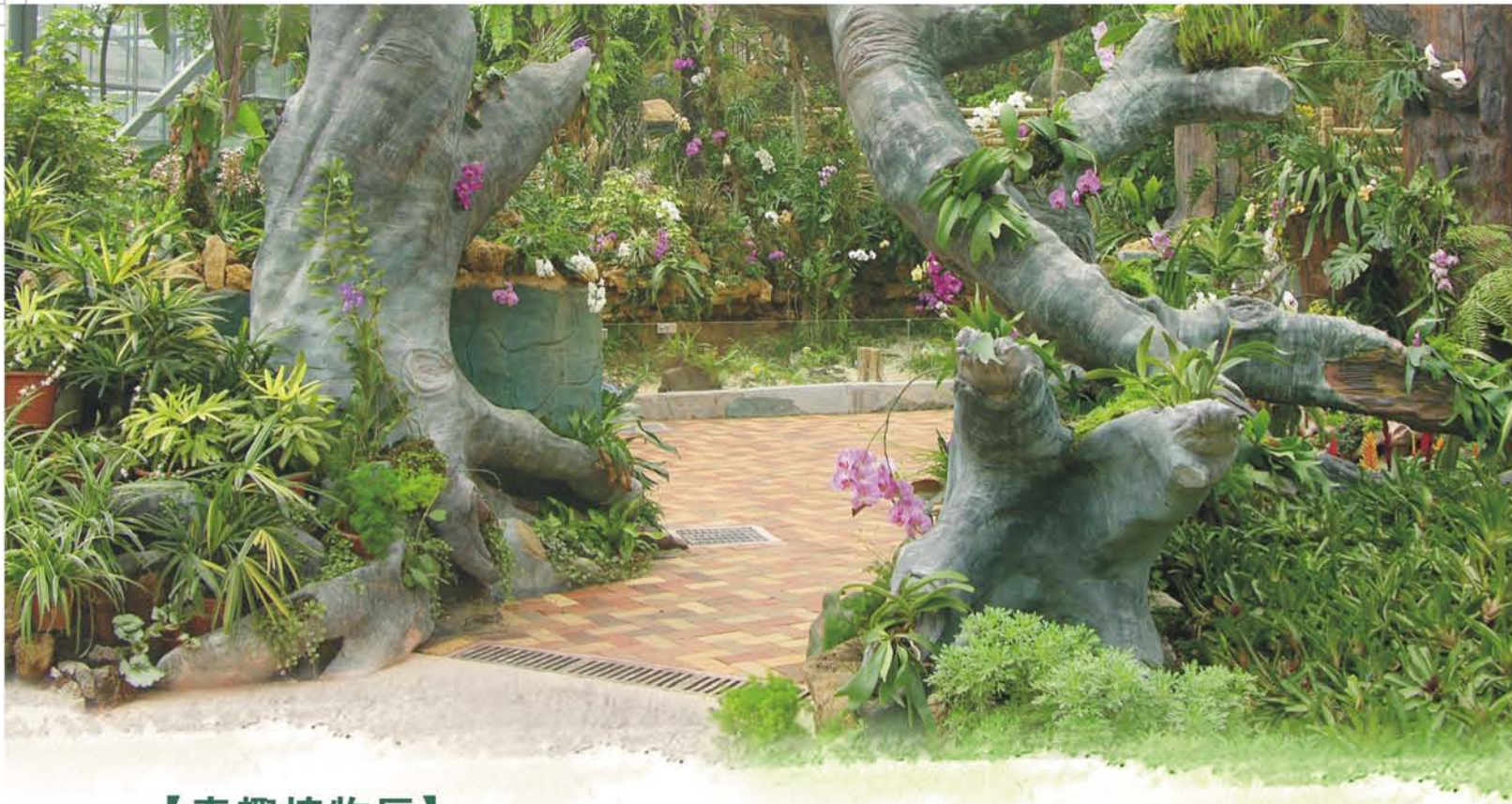
Hydrocleys Nymphoides

水罨粟 (*Hydrocleys nymphoides* (Willd.) Buchenau), 花蔺科 (*Butomaceae*) 浮游性水生植物。株高5cm, 茎圆柱形。叶簇生于茎上, 叶片呈卵形或近圆形, 叶面油亮光滑, 具长柄, 叶柄圆柱形, 叶柄的长度会随着水的深浅而有所变化, 有横隔。花单生, 具长柄, 罨粟状或杯状, 3瓣, 金黄色。蒴果披针形; 种子细小, 多数, 马蹄形。花期6~9月。

原产中美洲、南美洲。水罨粟的花姿亮丽优雅, 适合在水池、大型水槽中栽培, 现多引种于我国园林水景中。

Hydrocleys nymphoides (Willd.) Buchenau, *Butomaceae*. Phytoplankton, 5cm tall, stem cylindrical. Leaves long petiolate, fascicled on the stem apex, ovate or orbicular, shiny, petiole, septate, length varies with the depth of the water. Flowers solitary, long pedicel, poppy-like or cup-shaped, perianths 3, golden yellow. Capsule lanceolate; seeds small, many, U-shaped. Flowering in June-September. Native in Central and Southern America. It is usually cultivated in pools or troughs.





【奇趣植物区】

奇趣植物区由外圈种植区和中心广场构成。外圈种植区以火山石为材料形成高低起伏的梯级地形，主要展示植物根、茎、叶、花、果实的纷繁奇特。中心广场以巨型艺术硅化木、盘根错节的雨林艺术树根与观赏展示箱相连接，展示了以昆虫进补的食虫植物、吸取寄主“精华”的寄生植物、攀附高枝的附生植物、与友同行的共生植物、构建空中花园的绚丽兰花、为空中花园提供小水池的艳丽凤梨、造型奇特的藤蔓植物以及胎生植物红树林等热带雨林中的奇特植物，将神秘的热带雨林奇特、疯狂和令人眼花缭乱的植物世界，集中展现给广大游客，构筑游客对遥远的原始雨林的无限遐思。中心广场中央还配备极具趣味性的枯树桩休息长椅和电子讲解屏幕，为游人提供休闲观赏场所。

Fantastic Plants Section

This section comprises the surrounding plants area and the central square. The surrounding plants area exhibits the variety and oddity of plant roots, stems, leaves, flowers and fruits. The central plaza, equipped by huge silicified wood, artistic roots and display cases, exhibits insect-eating plants, parasitic plants, epiphytic plants, symbiotic plants, aerial orchids, colorful bromeliads, peculiar vines, viviparous mangroves. Benches made of fallen trunks and electronic screen as the interpreter are also equipped in the central square, facilitating visitors to relax and enjoy themselves in this section.

■ 爱吃荤的食虫植物

Carnivorous Plant

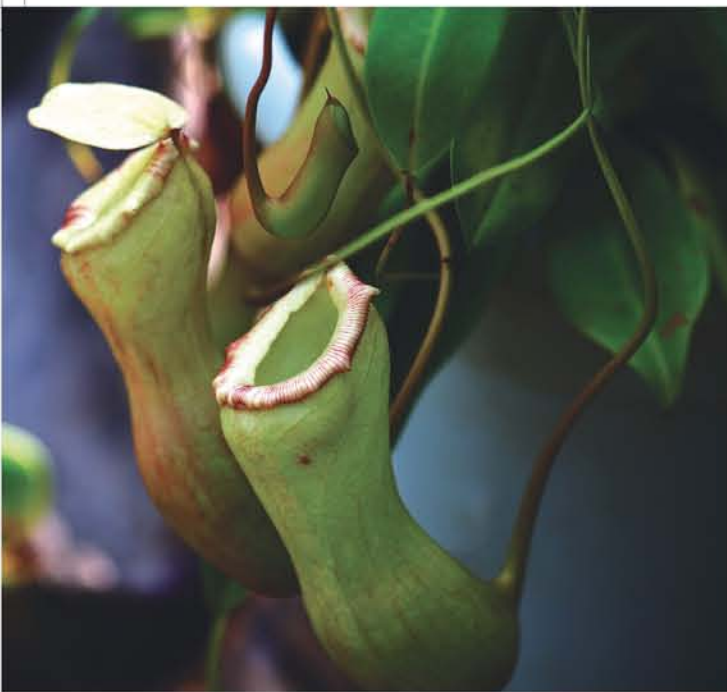
有一群植物，没有啮食的坚牙、没有捕猎的利爪，可它有捕虫袋、捕虫夹、苍蝇拍或可分泌的消化液，以此品尝到蚂蚁和苍蝇，甚至偶尔也能尝到青蛙和老鼠。虽然食谱已远远超出昆虫的范围，但人们还是习惯把这些能进行光合作用制造养分，同时能引诱、捕捉、消化并吸收昆虫及小动物的营养为自己进补的植物称为“食虫植物”。

目前已知食虫植物有10科21属600多种，多为多年生草本，高不过30cm，鲜有1米以上；广泛分布于热带、亚热带地区的沙滩、沼泽等水分丰富但缺乏氮素和矿物质的贫瘠地带。

Carnivorous plants are plants that capture, kill, and digest animal organisms. Though they can perform photosynthesis to produce food, they need to supplement their diets with nutrients from trapping and consuming insects and other arthropods, even frogs and rats.

Till now, there are more than 600 species of carnivorous plants found in 10 families and 21 genera, most of which are perennial herbs lower than 30 cm in height. They are widely distributed in beaches and bogs in tropics and subtropics, where water is rich but the soil is thin or poor in nutrients, especially nitrogen.





神奇的热带食虫植物—猪笼草

Nepenthes—Tropical Pitcher Plant

猪笼草 (*Nepenthes spp.*), 猪笼草科 (*Nepenthaceae*), 叶卷须尾部形成一个带盖的瓶状体, 即“捕虫囊”, 瓶口和瓶盖分泌芳香蜜汁引诱昆虫, 瓶体内充满着弱酸性消化液, 当昆虫进入笼中, 就会被消化液溺死或毒死, 并被消化分解, 最终变成营养物质而被猪笼草吸收。

The tropical pitcher plant (*Nepenthes spp.*), belonging to *Nepenthaceae*, are also known as monkey cups. The leaves are brightly colored with tendril-like tips which develop into insect-catching pitchers. Insects are lured to the pitchers by the bright colors and nectar. The inside walls of the pitchers are covered with waxy scales that make them very slippery. Insects may slip and fall to the bottom of the pitcher where the plant secretes digestive juice. Finally the insects will be decomposed into nutrients that can be absorbed by the plant.

维纳斯的苍蝇拍—捕蝇草

The Venus Flytrap

捕蝇草 (*Dionaea muscipula*), 茅膏菜科 (*Droseraceae*), 仅1种, 是非常有趣的食虫植物, 原产美国。叶的顶端有一个酷似“贝壳”的捕虫夹, 捕虫夹能分泌蜜汁, 当昆虫被吸引到夹子内, 捕虫夹迅速闭合, 夹缘的刺毛相互交叉并夹紧, 继而腺体分泌消化液消化吸收。

The venus flytrap (*Dionaea muscipula*), belonging to *Droseraceae*, is probably the most interesting carnivorous plant. It native to America. Insects are lured into the shell-like leaves by nectar. Once an insect enters the trap and touches tiny hairs on the leaves, it sends impulses through the plant triggering the leaves to close. Glands located in the leaves release enzymes that digest the prey and the nutrients are absorbed by the leaves.

气质高雅的索命瓶—瓶子草

Sarracenia — North American Pitcher Plant

瓶子草 (*Sarracenia spp.*), 瓶子草科 (*Sarraceniaceae*), 叶瓶状, 瓶口有许多蜜腺能分泌香甜而含毒素的汁液, 瓶内壁分泌消化液, 当贪婪的昆虫为了吃到更多的蜜汁不慎跌落瓶内, 消化液将其分解为所需的营养, 被瓶壁吸收。多生于美洲沼泽地。

Sarracenia (Sarracenia spp.), belonging to *Sarraceniaceae*, is native to American swamps. It has many tubular pitcher-shaped leaves. The trap is a vertical tube and the top of the tube usually has a rolled lip which excretes nectar and scents. Insects are lured to the trap by the nectar and drowned into the digestive juice. The corpses will be decomposed into nutrients and absorbed by the plant.



精致迷人的小魔掌—茅膏菜

Sundew

茅膏菜 (*Drosera spp.*), 茅膏菜科 (*Droseraceae*), 是精致迷人的小型食虫植物。叶上的腺毛和腺毛顶端的球状体分泌吸引昆虫的蜜汁和粘液及消化酶构成捕虫器, 当昆虫采食时, 极易被粘住; 昆虫越挣扎粘得越牢固, 继而被消化吸收。

Sundew (*Drosera spp.*), belonging to *Droseraceae*, is a carnivorous plant in minitype. It is covered with tentacles that produce a sticky dew-like substance which glitters in the sunlight. Insects are attracted to the dew and stuck when they land on the leaves. The tentacles then close around the insects and excrete enzymes to decompose the prey.





■ 附生与空中花园

Epiphytes and Hanging Garden

遮天蔽日的茂密丛林中，鲜有阳光能够到达地面，喜爱阳光的小植物该如何生存呢？这棵树上簇拥着丛丛绚丽的兰花，宛如一座色彩缤纷的“空中花园”。这些兰花具有海绵结构的气生根、能紧贴树枝或悬垂于空中吸收空气中的水分和游离氮素，甚至有的气根还具有叶绿体进行光合作用。有的具有假鳞茎或肥大的枝干以贮存水分和营养，有的叶片变成肥厚、革质再覆以蜡质以便减少水分蒸发。它们常常群居于树皮粗糙并含较多鞣酸的大树上，以便拦截更多的水分和腐殖质。

How do the small plants to receive sufficient sunlight in the dense jungles where sunlight can rarely reach to the ground? The clusters of colorful orchids growing on the tree make up a beautiful garden in the air. The orchids develop aerial roots with spongy structure, which attach to the trees tightly or hang in the air to absorb water and nitrogen, or even perform photosynthesis to produce nutrients. Some orchids have thick pseudobulbs or stems which store water and nutrients, some have fleshy and coriaceous leaves covered by a layer of wax to reduce transpiration. They commonly dwell on trees with rough and tannin-rich barks, so as to hold up more water and humus.

■ 海上森林—红树林

Forest on the Sea — Mangroves

红树林是生长在热带、亚热带海岸及河口潮间带特有的耐盐性、胎生木本植物群落，素有“海上森林”、“海底森林”和“潮汐林”之称。幽秘神奇、倚海而生，随潮涨而隐、潮退而现。枝繁叶茂的红树林不仅为海洋生物和鸟类提供了一个理想的栖息环境，而且以其大量的凋落物为它们提供了丰富的食物来源，从而形成并维持着一个食物链关系复杂的生态系统。

红树林是热带海岸的重要生态环境和资源最富庶的生态系统之一，是天然的海岸防护带，人称“海岸卫士”；它能净化海水、促进造陆，是开展生态研究、科普教育和生态旅游的理想场所。

Mangroves are plant communities that grow in saline coastal habitats in the tropics and subtropics. They are trees and shrubs characterized by high salinity-resistance and viviparity. They are well known as "forest on the sea", "forest under the sea" or "tidal forest", for they appear or disappear on the sea as tides coming or leaving. The thriving mangroves provide marine lives and birds not only with an good habitat, but with an abundant source of nutrients, hence they establish and sustain a sound ecosystem with complicated food-chain relationships.

Mangroves are growing as natural defense line on the coast against erosion, storms and tsunamis. They can also purify seawater and improve deposition. As an important ecological environment as well as the most bio-diversified ecosystem in the tropical coasts, mangroves are ideal sites to undertake ecology research, science education and ecological tourism.





【河谷雨林区】

河谷纵横、鸟兽众多、森林茂密，是热带雨林风光的重要体现。河谷雨林区结合雨林温室长约150米的河道洞穴、空中栈道和假山景观，与室外人工湿地、园区水系浑然一体，形成郁闭幽深的雨林河道空间特征，成为穿越温室水体的精彩片段。该区科学配置水生植物、近水植物、热带蕨类植物、藤蔓植物、岩生植物以及一些造型奇特飘逸的景观树种，布展了千屈菜、菖蒲、香蒲、芦苇等亲水植物和藤蔓植物、岩生花卉，共同营造出热带雨林河谷郁闭幽深的立体景观，形成了完整的水生生态系统，带给游人仿佛置身亚马逊河谷雨林的探险体验。

Ravine Rainforest Section

This section, integrating scenic components of the 150m-long river valley, upper plank road and rockery, together with the outside artificial wetland and water system, presents a typical environment of shady and deep ravine in the rainforest. Some aquatic plants, waterside plants, tropical ferns, vines, rock plants and peculiar scenic trees are collocated in this section. The aquatic plants, mainly purple-loosestrife (*Lythrum salicaria* Linn.), sword lily (*Gladiolus gandavensis* Van Houtte) and reed (*Phragmites australis* Trin. ex Steud.), in addition to the external environment, constructs a complete aquatic ecosystem and bring visitors a real feeling of exploration in the Amazon ravine rainforest.

■ 蕨类植物之王—桫欏

King of Ferns—Spiny Tree Fern

一亿多年前的中生代侏罗纪，桫欏 (*Alsophila spinulosa* (Wall. ex Hook.) Tryon) 与恐龙同时称霸地球，经过造山运动、第四纪冰川等环境巨变，桫欏能幸存下来，成为科学家研究古生物和地球演变的“活化石”，是国家一级重点保护植物。

桫欏为桫欏科 (Cyatheaceae) 树型蕨类植物，主要分布在热带、亚热带的雨林。茎直立，高1-6米，叶聚生茎顶，以孢子繁衍后代。桫欏树干坚硬而带美丽落叶痕，可作笔筒、花瓶等工艺品；髓心富含的淀粉可食用或酿酒，也可入药；身姿挺拔优美，是优良的庭园观赏植物。

In the Jurassic period of 100 million years ago, thick forest of spiny tree fern (*Alsophila spinulosa* (Wall. ex Hook.) Tryon) covered the earth and dinosaurs feed on them. It survived great changes like orogenic movement and quaternary glaciers and became "living fossil" or "relic plants", valuable in the research of paleontology and geological evolution. It is now listed as the national conservative plants of class- I. It is a member in the tree fern family (Cyatheaceae) and mainly distributed in the tropical or subtropical rainforests. It has an upright stem 1-6 meters high, with leaves clustering on the stem-top and spores to reproduce. The rigid stem with beautiful leaf scars can be made into vases and other craftworks. The pith is rich in starch, which can be used to make food or wine and used as medicine. It also has high ornamental in gardening.



■ 坚硬而沉重的铁力木

Mesua

铁力木 (*Mesua ferrea* L.)，藤黄科 (Guttiferae) 常绿乔木，产于印度、缅甸、斯里兰卡、南洋群岛及我国南部。国家二级保护植物。铁力木树木直立高大，木材质地坚硬而沉重，耐腐蚀性强，心材鲜红至紫色，所制家具经久耐用，可作硬木家具、军工、造船、车辆、建筑、枕木、特殊机器零件和制作乐器、工艺美术品之用。铁力木种子可制肥皂，种子油是西双版纳傣族佛寺礼佛用的主要植物油；鲜花油可作调香原料。

Mesua (*Mesua ferrea* L.), belonging to Guttiferae, is an evergreen arbor tree native to India, Myanmar, Srilanka, Malay Peninsula and South China. Listed as the national conservative plants of class- II. The tree is upright and tall with hard, heavy wood. Thus, it is used in the manufacturing machinery, musical equipment, craftworks and construction of buildings. The seeds are used to produce soap and oil, which can be used as industrial oil or lighting oil in Buddhism temples.





■ 老茎开花结果的叉叶木

Mexican Calabash

叉叶木 (*Crescentia alata* H. B. K.), 别名十字架树, 紫葳科小乔木。原产墨西哥。一般的植物是在一、二年生的枝上开花结果, 但叉叶木却在老茎、树干上开花结果。叉叶木是热带雨林里中下层树种, 在老茎上开花结果可以方便昆虫代其传粉, 还可以躲过狂风暴雨的袭击, 有利于繁衍后代, 此外其粗壮的树干也能承受硕大的果实和大量种子的重压。老茎开花、结果是植物在进化中逐渐适应自然环境而形成的生物现象。

Mexican calabash (*Crescentia alata* H.B.K.) is a small tree belonging to Bignoniaceae, originated from Mexican. Unlike the normal plants, its flowers grow on old branches or trunk. Mexican calabash grow in the lower level of tropical rainforest, where the cauliflory makes its pollination by insects more easy and also protects the flowers from storms. This biological phenomenon is a result of plants adapting to the tropical rainforest environment during evolution.



【雨林文化区】

Rainforest Culture Section

雨林文化区是热带雨林温室相对独立的科普教学空间, 以地形高差形成了两个台地科普活动场所。雨林文化区集中展示了与人类文明息息相关的热带饮料植物、热带水果和佛教植物, 让游人了解丰富的热带雨林资源和经济价值, 认知热带雨林与人类文明的密切关系。

This section is a relatively independent section to undertake science education activities in the tropical rainforest conservatory. It is a terrace with two levels of different height. This section exhibits the tropical beverage-source plants, fruit plants and Buddhism plants which are closely related to human life. Visitors can learn plentiful resources and economical values of plants, as well as the relationship between tropical rainforest and human civilization.



■ 一帘幽梦—锦屏藤

Princess Vine

热带雨林高温高湿，一些植物的茎干或树枝上长出 不定根，从潮湿的空气中吸收水分、营养和呼吸空气，形成著名的气生根。人们惊诧于锦屏藤（*Cissus sicyoides* 'Ovata'）数百上千条细长的气生根，垂悬于棚架，洋洋洒洒地从棚顶一直拖到地面，独具风格。其长长的气生根本是褐色的，新长出的气根却鲜红娇嫩，如扑面水帘，似一帘幽梦。

锦屏藤来自热带美洲，是葡萄科多年生常绿藤蔓，常作绿廊、绿墙或阴棚造景。成百上千的气生根从茎节上长出，延伸到泥土时即根深叶茂，使生命无穷无尽。夏到秋季开淡绿或白色的花，7-8月结果。

Princess vine (*Cissus sicyoides* 'Ovata'), also known as Millionaire vine or Curtain Ivy, is an evergreen perennial vine in the grape family (Vitaceae) and native to tropical America. It is especially noted for its abundance of long, slender aerial roots. Thousands of aerial roots suspend from the stem to the ground just like a curtain. The new growth of root is pink or red, while the old ones are brown. It is a popular ornamental vine for shady garden.



■ 石壁根网—两面树

Two-faced Root Tree

榕树生命力极其顽强，可独木成林，可包石生长，可绞杀大树，这些都依赖榕树独特的根系。榕树能长出许多细小的不定根，地上的不定根增粗生长后形成支柱根或板根，地下的不定根则向四面伸展形成新的根系，为大树的增长提供支撑或源源不断地供应营养和水分。

这株来自于越南的两面树是生长于古村庄石壁的细叶榕（*Ficus microcarpa* Linn.f.）。百年前，细叶榕种子随风飘进石缝中生根发芽，在土壤贫乏的石壁上形成粗细不一、纵横交织的发达根系，形成了奇特的石壁根网两面树景观。

Fig trees can develop adventitious roots from their trunks or branches and form distinct root systems to cover everywhere they are located. This Chinese banyan (*Ficus microcarpa* Linn.f.) was growing on the surface of a vertical wall and form a spectacular wall-like root system.



■ “千瓣莲花”——地涌金莲

Chinese Dwarf Banana

地涌金莲(*Musella lasiocarpa* (Franch.) C.Y. Wu), 芭蕉科(Musaceae)多年生丛生草本, 产云南、四川等地, 佛教“五树六花”之一, 傣族人把它当作驱恶避邪的吉祥物。花序直立, 生于短小假茎上, 密集成球穗状, 六枚苞片为一轮, 金黄色, 形如花瓣, 由下而上逐渐展开, 花期长达200多天, 宛如一朵长开不败的花; 开花时从地下冒出悄然绽放, 花形如莲, 故名“地涌金莲”。是我国特有的珍奇花卉, 茎汁可解酒醉及草乌中毒, 假茎作猪饲料; 花入药可收敛止血等。

Chinese dwarf banana (*Musella lasiocarpa* (Franch.) C.Y.Wu), belonging to Musaceae, is native to Yunnan and Sichuan of China. It is a member of the "five trees and six flowers" of Buddhism. It is a perennial clustering herb with upright inflorescence growing on the top of a short pseudo-stem. Numerous golden bracts are arranged on the inflorescence axis with six in a wheel, the inflorescence can last up to 200 days and look like a shining golden lotus flower, thus is also known as golden lotus banana. The plant bears flowers before leaves emerge. Saps of the pseudo-stem are used as dealcoholic medicine and for detoxification. The pseudo-stem is also used as feedstuff for pigs and flowers are used as medicines in constringency and hemostasia etc.

■ 饮料植物——可可

Cacao

可可(*Theobroma cacao* L.), 梧桐科(Sterculiaceae)。可可树花果长年生于主干和老枝上, 果长而大, 红色或黄色, 很有观赏价值, 是热带地区的典型果树, 为世界三大饮料植物之一, 原产南美洲。

可可豆含有较高的脂肪、蛋白质、含氮物质、可可碱、咖啡因、多种矿物质等, 营养丰富, 具有兴奋、滋补、增强思考力、调整心脏机能, 及扩张肾脏血管、利尿作用。是制造巧克力的主要原料, 也可制糕点及冰淇淋等食品。

Cacao (*Theobroma cacao* L.) is a small evergreen tree belonging to Sterculiaceae and native to the tropical region of America. They bear flowers and fruits on the trunk or old branches. Cacao beans contain abundant fat, protein, alkaloid, caffeine, minerals and many other nutrients. It is believed cocoa is good to heart, blood and can make people excite and clear in mind. The seeds are used to make cocoa and chocolate, and as ingredient of cakes and ice-cream.



■ 饮料植物——咖啡

Coffee

咖啡(*Coffea arabica* L.), 茜草科(Rubiaceae), 世界三大饮料植物之一。咖啡原产非洲北部和中部的热带地区, 现主要种植于拉丁美洲、非洲和亚洲的热带地区, 已有2000多年栽培历史。

咖啡种子含咖啡因、蛋白、脂肪、粗纤维及多种维生素、矿物质等, 适量的咖啡因对人体脑部、心脏、血管、胃肠、肌肉及肾脏等各部位具有刺激、兴奋作用, 能提高新陈代谢机能、减轻肌肉疲劳, 可作麻醉剂、利尿剂、兴奋剂和强心剂, 外果皮及果肉可制酒精或作饲料。

Coffee (*Coffea arabica* L.), belonging to Rubiaceae, is native to central and North Africa and now cultivated widely in the tropical areas of Latin America, Africa and Asia with a cultivation history of 2000 years.

Coffee beans contain caffeine, protein, fat, coarse fiber, vitamins and minerals etc. Coffee is not only fragrant and tasty, but also has a stimulating effect in humans due to its caffeine content. Caffeine can also be used as narcotic drugs, diuretics, stimulants and cardiotonic to improve digestion and promote metabolism. As the pericarp and pulp of coffee fruits are rich in sugar, they are also used to make feedstuff or alcohol.





【雨林群落区】

Rainforest Community Section

从散布岩石小山的低地平原，到溪流纵横的峡谷高山，静谧的池水、奔腾的小溪、飞泻的瀑布，造就了雨林地区复杂的地形、多样的地貌。参天的大树、缠绕的藤蔓、繁茂的花草，催生了热带雨林奇特的植物景观。芳草蓊郁、林木幽深的雨林群落区设计了穿梭于雨林群落区的木栈道，营造了掩映于雨林中的溪沟涌泉，与植物群落相结合，主要展现了亚洲、美洲和非洲热带雨林植物群落的主体组成植物和群落结构，模拟了热带雨林植物群落生境，重现了迷雾掩重嶂、苔藓铺青崖的奇特与枯藤缠老茎、泉流淌清响的童话，表现了古朴、原始和神秘的热带雨林环境和景观特点，给予了游人身临其境的原始体验。

The rainforest community section presents a great variety of landforms, including the lowland plain interspersed with rocky hills, deep valleys flushed by running streams, and steep mountains covered with thick forests. The skyscraping trees, tangled vines and thriving flowers altogether create picturesque scenery in the tropical rainforest, exhibiting an abundant resource of plants.

This section simulates the habitat of plant community in the tropical rainforest, which includes constructive plant species and community structure of different types of plant community in tropical Asia, America and Africa. Plank path is designed and built above the ground to cross through this section, facilitating visitors to appreciate and experience the primitive and mysterious environments on live.

■ 雨林巨人—望天树

Parashorea Chinensis

望天树（*Parashorea chinensis* Wang Hsie），龙脑香科（*Dipterocarpaceae*）常绿大乔木，树干通直，一般在30米以上才有分枝，大树具板根，是中国最高的树。1975年，云南省林业考察队在西双版纳森林中发现了一种高达80米的参天大树，要看清这种高耸入云的树，人们必须得“仰头望天才能看到树顶”，于是命名为“望天树”。

望天树是我国云南的特有珍稀树种，仅分布在西双版纳的补蚌等狭窄区域内，对环境要求极为严格，结实稀少且种子寿命很短、天然发芽率低，为国家一级重点保护植物。

Parashorea chinensis(*Parashorea chinensis* Wang Hsie) belongs to *Dipterocarpaceae*. It is the tallest tree in China. In 1975, the Yunnan forest explorers discovered this uncommon tree in Xishuangbanna rainforest which grows to 80m high.

Parashorea chinensis is a large evergreen tree with straight trunk from bottom to top. It branches above 30 m. The mature one has buttress roots. It is a rare species endemic to Yunnan province and only grows in a narrow area in Xishuangbanna. It bears little fruits with short life and low germination rate seeds. Now it is listed as the grade-1 plant for state protection.





■ 壮族百年“连理树”

100-year-old "Couple Tree" from Zhuang Village

生命相拥，枝叶相抱；相拥如斯，唯连理情深。连理树又叫合抱树，是两种不同的植物交织合抱、相依相伴地生长在一起。连理共生是自然界天然嫁接的产物，是根和树枝交织生长的结果。眼前的连理树是细叶榕（*Ficus microcarpa* Linn.f.）迎娶了斜叶榕（*Ficus tinctoria* subsp. *gibbosa* (Blume) Corner）而形成的。在广西壮族山区，百年前青梅竹马的细叶榕与斜叶榕相邻相伴。由于同属一大家族（桑科）的遗传基础，两种不同的榕树从根部到主干交织合抱在一起，历尽岁月沧桑，枝繁叶茂、相互愈合，终于形成难舍难分、相依为命的连理树，以最自然的方式诠释了“在天愿作比翼鸟，在地愿为连理枝”坚贞不屈的爱情故事。

"Couple tree", also named as "embrace tree", is derived from the trees of different species growing together like a couple and finally fuse to be one. This "couple tree" is created by a Chinese banyan (*Ficus microcarpa* Linn. f.) and a dye fig (*Ficus tinctoria* subsp. *gibbosa* (Blume) Corner) who neighbor each other for one hundred years. It is found in the Zhuang village in Guangxi.



■ 苗寨百年“鹊桥树”

"Bridge Tree" from Miao Village

跨越非洲雨林和美洲雨林的苗寨百年鹊桥树是细叶榕（*Ficus microcarpa* Linn. f.）开展雨林绞杀和遭遇台风的雨林艺术作品。鹊桥树来自中国热带雨林海南岛的保亭县苗寨。百年前，一次巨大的台风把湍急的溪流边一株被细叶榕绞杀的大树吹倒，树梢倒在了溪流的对岸。大树枯萎逝去后，细叶榕木质不定根以旺盛的生命力形成了紧紧环抱树干的鹊桥桥身。大树根部的细叶榕的气生根植入土壤后长出了新的枝叶，溪流对岸细叶榕树梢的气生根也着地成长，形成了鹊桥两岸根繁叶茂的树丛。

The "bridge tree", discovered in a Miao village of Hainan, is a Chinese banyan (*Ficus microcarpa* Linn. f.) striding across the water like bridge. Originally it was epiphytic and strangled a host tree via its adventitious roots at riverside. The host tree fell onto the other side in typhoon thus the banyan took root in the soil and continued to grow. One hundred years later, the host tree decayed and the root system of banyan became a hollow bridge.



百年毒王—见血封喉

Upas Tree - the Most Poisonous Tree

见血封喉 (*Antiaris toxicaria* (Pers.) Lesch.), 桑科 (Moraceae), 是木本植物中最毒的树种, 有“林中毒王”之称。干、枝、叶及果的汁液有剧毒, 经伤口进入动物体内可使心脏麻痹、血液凝固而死亡, 故得名“见血封喉”; 猎人常把汁液涂在箭头上以对付来袭的猛兽和敌人, 故又称“箭毒木”。汁液若不慎入眼或燃烧其枝叶的烟气入眼也会导致失明; 但这种毒素可入药, 治疗高血压、心脏病、乳腺炎; 树皮纤维可做毯子、褥垫和衣服, 舒适耐用。

分布于我国云南、广西、广东和海南等省区, 东南亚、南亚地区也有分布。

Upas tree (*Antiaris toxicaria* (Pers.) Lesch.), Belonging to Moraceae, is the most poisonous tree in the woody plants. The latex, present in the bark, foliage and fruit, contains a cardiac glycoside named antiarin, which is extremely poisonous to paralyze the heart by congealing the blood and finally causing death if it meet the blood from the wounds. Thus it is daubed on the arrowheads to kill animals or enemies and the tree is called "arrow poison tree" as well. The latex will also cause blindness if it enters eyes. However, antiarin can be used as medicine to cure hypertension, heart disease and mastitis. The fiber from the bark can be used to make blankets, mattresses and clothes.

Distributed in Guangdong, Guangxi, Hainan and Yunnan in China as well as Southeast Asia and South Asia.

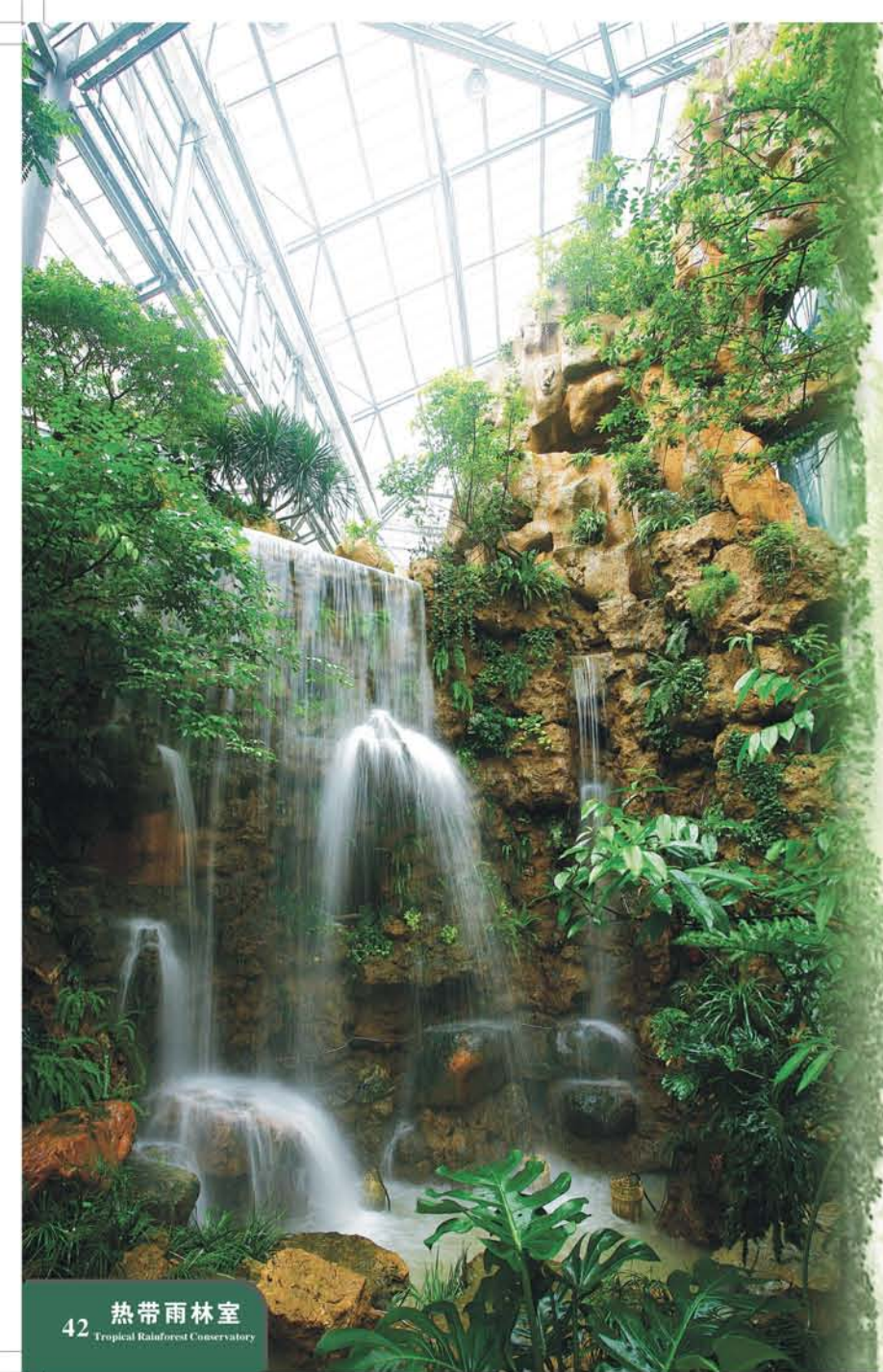
傣族百年“洞天树”

"Hollow Tree" form Dai Village

傣族百年洞天树来自中国热带雨林的云南西双版纳傣族乡村, 是热带雨林植物细叶榕 (*Ficus microcarpus* Linn.f.) 完成雨林生存绝技绞杀后展现的雨林艺术奇观。洞天树“茎”中空。起初细叶榕的种子成功地附着于一株大树的树干上, 在适宜的条件下萌发。根植入被绞杀植物以吸取营养和水分, 与所附生的大树和平共处、贮存力量; 岁月流失气生根逐步伸到地面并形成强大的支撑系统, 获得自身的支撑和丰富的营养, 变得更加强大; 随着不定根不断增多、分枝融合, 形成强大的木质树网系统, 团团围绞中间的大树。中间的大树因生活空间限制和营养不良而逐渐枯萎逝去, 细叶榕则取而代之成为一株独立的参天大树。该树奇特的长势技巧和神秘的中空孔洞, 恍然别有洞天, 得名“洞天树”。

The "Hollow tree", discovered in a Dai village of Xishuangbanna, Yunnan, is a spectacular strangler Chinese banyan (*Ficus microcarpa* Linn.f.) with a hollow pseudo-trunk of roots. Originally, the seed of the banyan was dispersed on the trunk of a host tree. It developed roots wrapping around the host tree and extending downwards. The roots increased in diameter rapidly once they reach the ground. Over years later, the roots fused to form a massive network that strangled the host. Gradually, the host tree died and decayed, leaving the strangler itself standing as a massive "columnar tree".





【中心瀑布区】

Central Waterfall Section

中心瀑布区模拟了热带雨林高山飞瀑景观，包括龙潭、虎穴、一线天奇景。桫欏、大型荫生蕨类植物、附生热带兰花、造型飘逸的热带雨林植物，配合雨林飞瀑，营造出古朴、幽暗、深邃的深谷雨林特色立体景观。一瀑三折的高山飞瀑景观为本区焦点景观，游人可从下层的观瀑平台、上层的观瀑亭以及穿梭瀑布山体的栈道和山洞等四个视角体验雨林飞瀑。瀑布水声由峭壁间隐约传出，空中栈道穿行于茂密的植被中，游人在头顶一线天的幽深空间体验后，曲折迂回地行到龙潭虎穴景点，原本依稀可见的庞大瀑布刹那间就在眼前。涌泉、溪流、飞瀑以及雾化雨林，使游人仿佛置身于热带雨林水雾缥缈的自然环境。

This section simulates the scenery of plunging waterfall in the tropical rainforest mountain, including dragon pool, tiger cavern and liny sky. Tree ferns, large shade ferns and epiphytic orchids are collocated nearby the waterfall to construct a primitive, deep and gloomy river-valley rainforest. The plunging waterfall is the focus of the scenery. Visitors can appreciate it fully at four sites, the lower platform, the upper pavilion, the plank road and the cavern, with different angles of view. Listening to the booms of waterfall behind the cliff, visitors can walk along the upper plank road in thick jungles, then grope through the narrow gap under a liny sky, and finally arrive at the "dragon pool & tiger cavern" in front of the waterfall.



■ 黑色之花—老虎须

Tiger Mustache

老虎须（*Tacca chantrieri* Andre.），箭根薯科（*Taccaceae*）。自然界中鲜艳夺目的色彩琳琅满目、应有尽有，老虎须却唯独钟情黑色。丛生的叶片四季常青，花紫褐色至黑色，花瓣基部有数十条紫黑色细丝，飘逸下垂，整个花序宛如生着长长胡须的虎脸，故名。因花序形状和色彩独特，为植物界罕见，是稀有观赏植物。老虎须为多年生草本，又名箭根薯，产我国华南和西南地区，生水边及林下荫湿处。因生境严重受破坏而成为渐危种，是国家二级重点保护植物。全株有毒，根状茎入药，治胃肠溃疡、高血压、肝炎及烧伤、烫伤、疮疡。

There are various colored flowers in the world but we can rarely find black flowers. However, the Tiger mustache (*Tacca chantrieri* Andre) is the special one that with black color flowers. Flower is in purple-brown to black and has tens of purple-black filaments suspending from the petal base which makes the flower look like tiger's face. It grows at waterside or damp place under forest in south and southwest China. Due to the lost of its habitat, tiger mustache becomes a vulnerable species and listed as national class- II protected plants in China. The whole plant is poisonous but has medicinal use.

沙漠植物室

沙漠植物室占地689m²,最高达10.52m,延伸至室外的沙漠植物景观区面积约2000m²,共收集仙人掌类及多浆植物约300种。本区以仙人掌类和多浆植物的原产地进行分区展示,按照环形游览路线,依次分为美洲沙漠植物区、非洲沙漠植物区、亚洲沙漠植物区和澳洲沙漠植物区。

大漠孤烟、古塞流沙、茫茫戈壁……气势磅礴的沙漠风光,古往今来都是众多探险者和旅游者的向往之地。生长在这种独特环境下的沙漠植物以其瑰奇多变的形态、绚丽夺目的花朵、超顽强的生命力倍受到世人钟爱。本区以砂石作介质,人工营造了陡石峭壁、风蚀岩层、沙海孤城。同时室内与室外景观相呼应,浑然一体。在人工模拟的沙漠干旱气候下,采用生态园林和群落学手法,展示了来自世界各地的仙人掌类和多浆植物。整体色调呈黄褐色,河岸地带块状黄玉石层叠、犬牙交错,在葱绿的热带风光对比下,凸现异域风情和沙漠地域特色。放眼望去,这些来自大漠的绿色精灵们,或秀气隽永、或憨态可掬、或高大伟岸、或高雅华贵,行走其间、流连忘返。

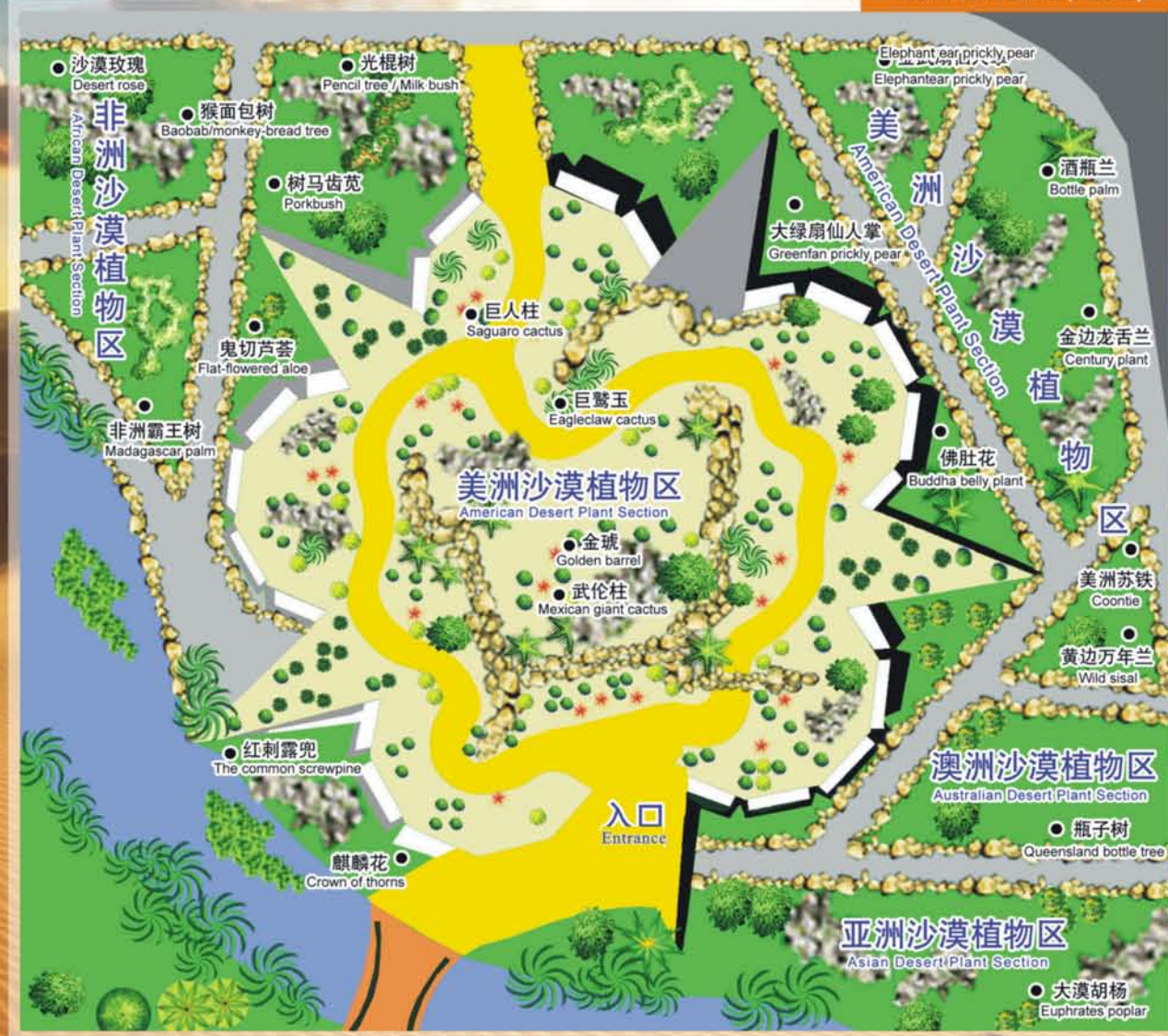


Desert Plant Conservatory

Desert Plant Conservatory, with an area of 689m² and a maximum height of 10.52m, including the outside deserts, the desert scenery section occupies a total area of 2000m² and conserves about 300 species of cacti & succulents. These desert plants are exhibited separately in their original habitats. The layout of this section is designed to be a circle with mimic American desert, African desert, Asian desert and Australian desert surrounding outside the central conservatory. The boundless sand, ancient fortresses and moving dunes are most attracting scenes in the mysterious desert. Plants growing in deserts are bestowed various shapes, showy flowers and strong vitality. In this section, steep cliffs, weathered rocks and lonely fortresses are laid out on a sandy ground. The outdoor scene corresponds to the indoor scene, making up a complete desert landscape. The simulated desert conditions with arid climate, as an ecological gardening technique and community theory, are adopted to exhibit the cacti and succulents throughout the world. The yellowish land with dotted rocks and wriggling riverbanks, contrasted by the nearby green tropical scenery, presents an exotic flavor and desert features.

沙漠植物室导游图

Desert Plant Conservatory Tour Map



霸气十足—非洲霸王树

非洲霸王树 (*Pachypodium lamerei* Drake), 夹竹桃科 (Apocynaceae), 常绿多肉植物, 原产非洲马达加斯加岛西南部。褐绿色圆柱形茎干肥大挺拔, 密生部。褐绿色圆柱形茎干肥大挺拔, 密生部。褐绿色圆柱形茎干肥大挺拔, 密生部。3枚一簇的硬刺, 较粗稍短; 茎顶丛生翠绿色长广线形叶, 尖头, 叶柄及叶脉淡绿色; 花白色。喜温暖及阳光充足, 耐干旱。播种和分蘖繁殖。外观奇特, 盆栽观赏, 为多肉植物中的珍稀品种。

Madagascar Palm

Madagascar palm (*Pachypodium lamerei* Drake), Apocynaceae. An evergreen plant native to Madagascar in Africa. It has large thorns and leaves mostly at the top of the stem. The plant bears whitish, fragrant flowers. It grows well in warm, sunlight-sufficient and arid habitat. It propagates via seeds and tillers. It is a rare stem succulent for bonsai ornamentation.

澳洲沙漠植物区

Australian Desert Plants Section

澳洲沙漠植物区主要展示原产于澳洲荒漠的沙生植物约50种。以高大伟岸、形如巨瓶的瓶子树, 秀气俊朗、素有澳洲黑马王子之称的黑仔树, 身形魁梧、颇具王者之风的澳洲摩尔大苏铁等为群落骨干, 配合沙丘、点缀巨石, 再疏密有致地配置其他中小型沙生植物, 展现了别具一格、独有韵味的澳洲风情。

This section presents about 50 species of desert plants native to Australia, including Queensland bottle tree (*Brachychiton rupestris*), blackboy tree (*Xanthorrhoea quadrangulata*), Moore cycad (*Macrozamia moorei*) and other small & medium-sized desert plants.



沙漠水塔—瓶子树

» 瓶子树 (*Brachychiton rupestris* (T. Mitch. ex Lindl.) K. Schum.) 别名澳大利亚佛肚树、酒瓶树，梧桐科 (Sterculiaceae) 植物，原产澳大利亚，为当地热带疏林的优势植物。

瓶子树最有趣的是它的树干，圆鼓鼓的，好似弥勒佛的大肚子一样，此为中文名“佛肚树”的来源。瓶子树的大肚树干，有一种特殊本领，就是储存水份，一株直径5公尺的瓶子树树干内，大约可贮水2吨左右，非常惊人！在沙漠中旅行口渴无水喝的人，只要找到一棵瓶子树，用刀在树干上挖一个小孔，清新解渴的“饮料”便可源源不断地流出来，解决缺水之急。

Queensland Bottle Tree

» Queensland bottle tree (*Brachychiton rupestris* (T. Mitch. Ex Lindl.) K. Schum.) Sterculiaceae. Native to Queensland, Australia. Its grossly swollen trunk gives it a remarkable appearance and gives rise to the name. It can grow to 18-20m in height and its trunk has the unique shape of a bottle. Its swollen trunk is primarily used for water storage.

涅槃而生—黑仔树

» 黑仔树 (*Xanthorrhoea australis* R. Br.), 禾木胶科 (Xanthorrhoeaceae), 澳洲最古老树种之一，具地下根茎，植株无茎至高达7米的树干，常分枝。树冠几乎呈球形，叶长剑形，顶部密生，长达1米以上，灰绿色，截面呈四边形。剑状花序大，比花梗长，花梗刚抽生时呈粗皱状，花期7-12月。生长缓慢。

在澳洲，该树被火烧后树干变黑，因而得名黑仔树，而其老叶下垂形成独特的裙子状，可遮盖部分被火熏黑的树干。

Xanthorrhoea australis R. Br.

» *Xanthorrhoea australis* R.Br., The Grass-tree or Black Boy is one of Australia's oldest trees in the family Xanthorrhoeaceae. With rhizomes and branched trunk can grow up to 7 m tall. The crown of leaves is almost spherical in shape, sword-shaped leaves gray-green, cross-section square and can grow up to 1 m or more. It is flowering from July to December with large sword-shaped inflorescence. Old leaves hang down forming a distinctive skirt-like feature that partly covers the fire-blackened trunk.





亚洲沙漠植物区

亚洲沙漠植物区主要展示原产于亚洲荒漠地区的沙生植物约50种。以来自中国西域戈壁的绿色明珠，被誉为“生而千年不死、死而千年不倒、倒而千年不朽”的大漠胡杨林为主打景观；或静卧水边、低头沉思，或仰天长啸、直指苍穹，或悠然而立、笑看乾坤，营造了大漠深处英雄树们的道劲沧桑和古怪嶙峋！历史的印迹和艺术精髓完美结合，令人叹为观止！古树、流沙、残石之间，点缀或群居以大漠红柳、梭梭、沙拐枣、骆驼刺、胖姑娘等亚洲内陆典型荒漠植物，给予游人方寸间真切感受西域大漠的雄风古韵！

Asian Desert Plants Section

This section conserves about 50 species of desert plants native to Asia, including some typical xerophytes like salt cedar (*Tamarix ramosissima*), saxoul (*Haloxylon ammodendron*), *Calligonum mongolicum*, camelthorns (*Alhagi sparsifolia*). The euphrates poplar (*Populus diversifolia*), which originates in the Gobi desert of West China, is designed to be the scenic theme of this section, leading visitors to appreciate the long and mysterious history of ancient West China.



Euphrates Poplar

Euphrates poplar (*Populus euphratica* Oliv.), Salicaceae. The only one species of poplar that can grow in the harsh desert. A natural arbor tree in the Gobi desert and the only one tree species in Xinjiang that enable forestation. Distributes in the Taklamakan Desert. A primitive and rare tree in Xinjiang. Praised as "hero tree of desert" due to the resisting characters to drought, sandstorm and salt.

千年不朽—大漠胡杨

胡杨(*Populus euphratica* Oliv.), 杨柳科(Salicaceae), 是杨柳科中唯一能在荒漠地区沙漠、戈壁中天然生长的乔木树种, 也是新疆荒漠和沙地上唯一能天然成林的树种, 主要分布在塔克拉玛干沙漠周围地区, 逐水而居。

胡杨是新疆古老的珍奇树种之一, 据考证至少有6500万年的历史, 被称为“活着的植物化石”, 具有很高的研究、保存和观赏价值。维吾尔语称胡杨为托克拉克, 意为“最美丽的树”。由于它具有惊人的抗干旱、御风沙、耐盐碱的能力, 能顽强地生存繁衍于沙漠之中, 因而被人们赞誉为“沙漠英雄树”。



高山/极地植物室

Alpine & Polar Plant Conservatory



高山/极地植物室由次入口广场、亚高山植物区、高山植物区、南极北极植物区和控温设备组成。次入口广场以亚热带观赏灌丛配合天然岩石，形成亚热带观赏灌丛植物景观。亚高山植物区、高山植物区、南北极植物区由隧道、盘山道、登山道三层道路系统连接，模拟了亚热带、亚高山、高山至南北极植物自然生境和特色植物，营造了亚热带至极地不同植物区系环境下特有的优美园林景观。注重了科学性、趣味性和观赏性，体现了植物、景观与自然的和谐，收集亚热带、亚高山、高山和南极北极植物200多种。

高山/极地植物室占地面积853m²，高达10.52m。对亚高山植物至极地植物采取大规模的人为模拟或屏蔽手段，为我国南方高山植物和珍稀濒危特有植物的生物多样性保护、高山植物功能生态研究等提供了研究和科普展示平台。

Alpine & polar plant conservatory consists of the sub-entrance plaza, subalpine plants section, alpine plants section, Antarctic/Arctic plants section. The sub-entrance plaza presents scenery of ornamental subtropical bushes growing among the natural rocks. The subalpine plants section, alpine plants section, Antarctic/Arctic plants section altogether are connected by tunnels, spiral paths and climbing paths, simulating the natural habitat of subtropical, subalpine, alpine and Antarctic/Arctic areas and exhibiting the endemic plants and picturesque landscapes respectively. The exhibits and settings highlight the attributes of science, interest and viewability. More than 200 species native to the habitats above are exhibited in this house.

With an area of 853m² and a maximum height of 10.52m, alpine & polar plant conservatory conserves the subalpine and polar plants by means of massive simulation and screen-shield. This is an advanced platform for scientific research and science communication of the alpine plants or rare & endangered plants, either in the field of diversity conservation or in the field of ecological function.



高山植物 Alpine Plant

高山植物是指生长在高山森林线以上、雪线以下的植物。由于高山的温度低，气压低，紫外线强，气候多变，昼夜温差极大，因此植物生长周期通常较短（热带高山除外）。在这种环境下生长着一些鳞茎类、肉质类、根茎类的特殊植物，它们通常呈垫状、莲座状生长，全株披着浓密的茸毛，叶子小型化，叶表皮角质化、革质化或叶片肉质化。它们的生命周期较长，有的长达几十年至上百年。它们茎干扭曲，盘根错节，一丛丛、一簇簇地布满在夹杂石砾的坡地上，显示着它们艰辛而顽强的生命力。一旦等到冰雪融化，有的植物立即绽放出艳丽的花朵。

由于高山多变的气候环境和复杂的地形地势，使得那里成为植物种群丰富和生物多样性的区域。据不完全统计，分布于高山区域内的高等植物有8000-10000种，分别属于100个科2000多个属，占已知高等植物总数的4%左右。

Alpine plants are those plants that live in above the timber line but under the snow line. The climate there is characterized by low temperature, low air pressure, strong ultraviolet radiation, changeable climate and huge temperature difference between day and night, so the growing time of plants (exclude the tropical alp) are quite short. Under this condition, plants are usually special with bulbous, succulent and radicant part, they often grow in cushion or rosette form, and wrapped with dense villus. They have miniaturized blade, their leaf epidermis is cornified or coriaceous or their leaf is succulent. Their life cycle is very long - some of them can live more than decades or hundreds. Their stem twisted, roots tangled and branches gnarled. They crowd together and spread on the slopes with stones showing their hard but tenacious life. Some alpine plants blossom out with quite colorful flowers immediately after the snow melted. Due to the changeable climate and complex topography, alpine plant usually have ample populations and rich biodiversities. According to incomplete statistics, there are 8000-10000 species of 100 families and more than 2000 genera of advanced plants distributed in alp area, which is about 4% of the known advanced plants.



极地植物 Polar Plant

极地植物是生长在寒冷的南极和北极的植物。由于极地气候的酷寒、干燥、风大、日照量极少、营养缺乏和生长季节很短，严重地制约了植物的生长和发育，致使极地植物种类稀少。北极有2600多种植物，南极仅有850多种植物，没有高大的树木，只有草本及其它低等植物，其中大部分是地衣和苔藓。这些植物都紧紧地贴生在地面，能很好地承受积雪的压力，且长时间处于休眠状态，只要每年有一小段温暖的天气，植物就会立即发芽，在短短的一两个月内完成了生长、繁育的过程。

Polar plants are those which grow in Antarctic and Arctic regions. Polar plants growth and development are severely restricted by the bitterly cold, dry, windy climate, very little amount of sunlight, nutritional deficiency and a very short growing season, so that the plant diversity in polar regions is very poor. There are about 2600 plant species in Arctic, while 850 or so in Antarctic, there are no tall trees, only herbs and other lower plants, mostly lichens and mosses. The plants are tightly adnate on the ground, can withstand the pressure of snow well, and have long dormant period. When the annual short-term warm weather comes, polar plants can immediately germinate and complete the growth and breeding process in just a couple of months.



高山/极地植物室 导游图

Alpine & Polar Plant Conservatory

入口
Entrance

● 珙桐
Dove tree

南极/北极植物区
Antarctic/Arctic Plants Section

● 马缨花
Delavay's rhododendron

高山植物区
Subalpine Plants Section

● 报春花
Primrose

● 高山龙胆
Mountainous gentian

● 马先蒿
Whorled lousewort

● 巴山冷杉
Farges fir

● 秦岭冷杉
Chensi fir

● 大白杜鹃
White azalea

亚高山植物区
Subalpine Plants Section

● 马缨花
Delavay's rhododendron

● 对节白腊
Hubei ash

● 罗汉松
Buddhist pine



► 高山奇葩—报春花

An Alpine Miracle-Primrose

“报春花”被誉为“春的使者”，总是在初春时节绽放，给人们带来春的喜讯，因而得此美名。报春是著名的高山花卉，因其五彩缤纷的花色、秀逸百态的花姿和丰富多彩的生态环境，与山茶、杜鹃并称为云南三大名花。

报春花(*Primula spp.*)为报春花科(*Primulaceae*)报春花属(*Primula*)多年生草本植物，主要分布在北半球温带和高山地区。全世界共有报春花属植物500余种，我国有300多种，云贵地区的高山上种类最为丰富，这里也是报春花的分布中心。目前，我园高山温室引种了海仙报春(*Primula poissonii*)、桔红灯台报春(*P. bulleyana*)和霞红灯台报春(*P. Beesiana*)等三种。

Primrose(*Primula*) always blossoms in early spring and brings the good news of spring, so it is called 'The Herald of Spring'. Primrose is a classic alpine flower, and is colorful with all kinds of postures.

Primrose is a perennial herb species of genera *Primula* in family Primulaceae, which chiefly distributed over temperate or alpine northern hemisphere. There are about 500 species of primrose throughout the world in which more than 300 species can be found in China. The Yunnan-Guizhou Plateau is the distribution center of primrose in China, which is also the area of greatest biodiversity. So far, we have introduced three species - *Primula poissonii*, *P. Bulleyana* and *P. Beesiana* in the alpine & polar plant conservatory.



► 碎米荠 Hairy Cress

碎米荠 (*Cardamine hirsuta* Linn.), 十字花科 (Cruciferae) 一年生小草本, 株高15-35厘米, 茎直立或斜升, 叶为羽状复叶, 基生叶有柄, 总状花序生于枝顶, 花小, 白色, 长果角线形。碎米荠广布于全球温带地区。多生于海拔1000米以下的山坡、路旁、荒地及耕地的草丛中。

碎米荠可作野菜食用; 全草药用, 具有疏风清热、利尿解毒、凉血、明目的功效。种子可榨油, 含油率25%。碎米荠花色洁白、淡雅, 可做观花地被材料。

Hairy cress (*Cardamine hirsuta* Linn.), Cruciferae. Herbs annual, 15-35cm tall. Stems erect, ascending, or decumbent. Leaves pinnate, basal leaves petiolated. Inflorescences racemose, at terminal of branches, flower tiny, white. Fruit linear. Widely distributed in the global temperate zone, usually growing in mountain slopes, roadsides, fields, wastelands, altitude up to 1000m. Hairy cress can be used as wild vegetable. Moreover, it can be used as medicine for clearing heat, cool blood-heat and improving vision. Its seeds contain rich edible oil. Furthermore, it can also be used as groundcover plant by having white and delicate flowers.

► 清雅脱俗的大白杜鹃 White Azalea

大白杜鹃 (*Rhododendron decorum* Franch.), 产四川、贵州、云南和西藏等, 生于海拔1000-3300米的灌丛中或林下。

大白杜鹃花梗淡绿色带紫红色, 花大, 色泽清雅脱俗, 具有较高的观赏价值。花和叶有小毒, 经过煮、水浸去毒后可鲜食或腌渍为菜。根、枝叶可入药。

White azalea (*Rhododendron decorum* Franch.) distributed in Sichuan, Guizhou, Yunnan, and Xizang provinces of China, growing in shrubs and under forest at altitude 1000-3300 m. White azalea has pale green pedicels, big comely and delicate flowers, and therefore has high ornamental value. Its flowers and leaves are little toxic, but can be edible after cooking. Its roots and branches have medicinal uses.



► 高山龙胆 Mountainous Gentian

“霜重色愈浓”, 在秋风萧瑟、草木枯黄的时节, 高山龙胆 (*Gentiana algida* Pall.) 如傲霜的秋菊, 含笑西风, 鏖战严寒, 静谧开放。高山龙胆为龙胆科 (Gentianaceae) 多年生草本, 为适应高山气候、避免强劲山风袭击, 植株体形大多很矮小, 茎极短, 叶簇地而生, 往往形成莲座状。

高山龙胆生于海拔2100米左右的高山冻原草地。分布于我国东北、西北及西南部, 朝鲜、日本、俄罗斯也有。

“Heavy frost deepening the wild color”. Mountainous gentian (*Gentiana algida* Pall.) blooms in autumn, while many other plants wither and died in this season. Gentianaceae. Perennial herbs, usually dwarf, with extreme short stem and rosette leaves due to the adaption to the mountainous climate. Mountainous gentian growing in the grassland at altitude ca. 2100m of alpine tundra, distributed in NE, NW, and SW China, and Korea, Japan, and Russia.





► 中国鸽子树—珙桐

珙桐(*Davidia involucrata* Baill.), 誉满全球的“中国鸽子树”，有象征和平之意，为珙桐科(Nyssaceae)落叶乔木。花奇色美，外形似鸽子展翅，紫红色的头状花序如头部，绿黄色的柱头像喙，白色的苞片似双翼。4~5月花开时，张张白色的苞片在绿叶丛中浮动，宛如千万只白鸽在枝头振翅欲飞。著名植物采集家威尔逊在《中国，园林之母》中称：“珙桐是北温带最美丽的树木”。

珙桐是我国特有的珍稀树种，为国家一级保护植物。约100万年前，地球上植被十分丰富，珙桐及其家族曾繁盛一时，但在第四纪冰川侵袭后，许多植物惨遭灭绝。我国的高山大川成了各种动植物的天然避难所，珙桐就是幸存的古老植物之一，故有“植物活化石”之称。

Dove Tree

Dove tree (*Davidia involucrata* Baill.), is famous in the world by its flowers standing for “peace”. Nyssaceae. Deciduous tree. Its purple capitulum inflorescence seems to be the head, greenish yellow styles to be beak, and white showy bracts to be wings, on the whole, it resembles a flying dove. From April to May, pieces of bracts hanging in the green leaves look like thousands of flying white doves. Ernest Henry Wilson, a famous British plant hunter, wrote “Chinese dove tree is the most beautiful plant in the north temperate zone” in the book “China is, indeed, the Mother of Gardens”. Dove tree is not only a rare and endangered plant but endemic to China, belonging to Grade I state key protected wild plant. Before ca. 1 million years, the vegetation was very rich in the earth, and the dove tree and its family were also very prosperous at that period. But after the invasion of ice glacier occurred in quaternary period, many plants were extinct. The high mountains and deep ravines in China became the refuge for various plants and animals. The dove tree was one of the ancient survived plants in central and western remote mountains of China, and it was therefore called “living fossil plant” and “green panda”.

► 艳红如火—马缨花

Delavay's Rhododendron

马缨花(*Rhododendron delavayi* Franch.) 又称马缨杜鹃，生长于云贵高原海拔200~3100米的灌木丛中。缅甸也有分布。

马缨花树干古朴苍劲、花大而美丽，密生枝顶，红艳如火，为优美的庭园观赏植物。花入药，具有清热解毒，止血调经的功效。木材淡红色，质脆，当地人用来制木碗。

Delavay's rhododendron (*Rhododendron delavayi* Franch.), distributed in Yunnan - Guizhou Plateau of China, growing in shrubs at altitude 200-3100m. It was also found in Myanmar.

Their trunks look aged and vigorous, and their large and beautiful flowers cluster at the terminal of branches, therefore, it is a kind of beautiful ornamental plant. Flowers can be used as medicine for clearing heat, removing toxic. Timber can be made into bowls by local people.



► 母爱之花—鲁冰花 Lupin - Flower of Motherhood

“天上的星星不说话，地上的娃娃想妈妈……夜夜想起妈妈的话，闪闪的泪光鲁冰花……”这首台湾民谣大家都听过吧！您知道鲁冰花是什么花吗？

鲁冰花的学名叫多叶羽扇豆(*Lupinus polyphyllus* Lindl.)，为多年生草本，花多而稠密，花色丰富艳丽，有红、黄、蓝、粉等多色。原产美国西部，我国有栽培。其根部具有根瘤，能够增加土壤肥力，故台湾山地的茶农在种植高山云雾茶时，常常在茶树附近种上鲁冰花，以帮助茶树健康生长，让茶叶更加芳香甜美。鲁冰花死后，还能化作春泥更护花，这正如同世间最真挚的母爱一样无私而伟大，因此鲁冰花被誉为“母亲花”。

Lupin (*Lupinus polyphyllus* Lindl.) is a perennial herb with numerous, dense and colourful flowers in red, yellow, blue or pink. It is native to western USA and introduced to China.

Lupin has root nodules which can increase soil fertility. They are usually planted near tea trees in the montane area in Taiwan to help tea trees grow more healthily and to make tea leaves more scented. Even after death, the remains of lupin can also serve as fertilizer to nourish tea trees. This role is actually like mother who breed the children all her life with the most selfless love. Therefore, lupin is regarded as "the flower of motherhood".



► 红皮糙果茶

Camellia Crapnelliana Tutchet

红皮糙果茶(*Camellia crapnelliana* Tutchet)，山茶科(Theaceae)。其平洁光滑的红色树皮最引人注目，叶片长圆形，边缘有细锯齿。花果期为9-12月，花瓣白色，花的中央有无数黄色的雄蕊；果球形，红褐色，果皮粗糙，且十分坚硬，种子含油量丰富，是重要的观赏植物和油料植物。因为野生资源数量稀少，已被列为国家二级重点保护植物。分布于广西、广东、福建、浙江等地，喜欢生长在低海拔、富含腐殖质的森林红壤上。

Camellia crapnelliana Tutchet, Theaceae. It is a 5-7m tall small tree with thickly leathery leaves and solitary and terminal flowers. The seed oil is edible. In 1903, the species was first collected and described by W. J. Tutchet from Mount Parker, Hong Kong, only one plant was found at that time. The plant was introduced to Japan in 1968. In Hong Kong, it is distributed in Mount Parker and Mau Ping in Ma On Shan. It is also distributed in Guangxi, Fujian, Zhejiang. It is an important plant for ornamental and oil. It has been listed as Grade II in the checklist national protected plants because the wild resources are very limited.

奇异植物室

Rare and Exotic Plant Conservatory

满目苍翠，遍地秋叶，报四季冷暖；婀娜多姿，五彩斑斓，展史诗画卷。含羞草羞见暮色，跳舞草闻歌起舞，草木也多情；奇特的摄食、有效的防御、有趣的运动，胎生繁殖、报时节律，相亲相克、传递信息，赋予了植物世界妙趣横生的动物特性。奇异植物室环抱于“水下森林”，占地面积约1531m²，以不同色泽的火山石景墙和展示箱，引导展示源自异国他乡的观花植物、观果植物、观叶植物和迷你植物，辅以花形奇异、艳丽夺目的姜目植物和形状特殊、色彩斑斓的天南星科植物，突显了热带异国植物风情和优美的园林景观，是展示人类探索自然和充满科学奇趣的科学园地。

Rare and Exotic Plant Conservatory is surrounded by the “Aqua-Forest Aquarium” and covers an area of 1531m². A stone wall which is made of colorful volcanic rocks, and several display chambers are equipped inside this conservatory to exhibit variously fantastic plants from abroad, including the flower effect plants, the fruit effect plants, leaf effect plants and mini plants. Associated with plants in the ginger order whose flowers present an odd conformation, as well as the arums (Araceae) which are endowed with strange leaves and inflorescences, this conservatory highlights the exotic flavor and picturesque scenery of tropical plants. This conservatory is a scientific base for visitors to explore the magic nature and interesting plant world.



奇异植物

地球上的植物经过亿万年的进化演变，形成了一个庞大的植物家族，从普通的小草到高大的乔木，植物的形态各异，姿态万千，叶子千奇百怪，花朵色彩缤纷，果实形形色色，构成了五彩斑斓的植物王国。还有一些植物不仅具有植物的基本属性，而且又具有一些奇异的特征，如：含羞草的害羞避敌、跳舞草的闻歌起舞，食虫植物的奇特摄食、拟态植物的有效防御、红树林的胎生繁殖、时钟花的节律报时、“石头”会开花、大树也长出大大的“西瓜”和美味的“面包”……这些奇异植物妙趣横生，各出奇招，带给人们无比惊奇和震撼。

金塔朱槿

Hibiscus rosa-sinensis 'Golden Pagoda'

蜂出巢

Centrostemma multiflorum

黄花风铃木

Tabebuia chrysantha

扇贝兰

Prosthechea cochleata

日日樱

Jatropha pandurifolia

小花豹豆兰

Bulbophyllum lastochilum

金嘴蝎尾蕉

Heliconia rostrata

风铃辣椒

Capsicum baccatum

Fantastic Plant

After millions of years of evolution, plants have successfully prospered the Earth and formed a great plant kingdom. Ranging from ordinary grass to tall trees, different plants produce various leaves, colorful flowers and all kinds of fruits. Also there are plants possess some unique characteristics other than ordinary ones. For instance, the sensitive plant's (*Mimosa pudica*) shyness to external forces, the dancing grass' (*Codariocalyx motorius*) dance to music, the insectivorous plants' peculiar ways of feeding, mimicry plants' effective defense, mangrove's viviparous propagation, ect., all of which bring you amazing surprise and fantastic fun.

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金塔朱槿

(*Hibiscus rosa-sinensis* 'Golden Pagoda')

蜂出巢

(*Centrostemma multiflorum*)

黄花风铃木

(*Tabebuia chrysantha*)

扇贝兰

(*Prosthechea cochleata*)

日日樱

(*Jatropha pandurifolia*)

小花豹豆兰

(*Bulbophyllum lasiochilum*)

风铃辣椒

(*Capsicum baccatum*)

金嘴锦尾蕉

(*Heliconia rostrata*)

After millions of years of evolution, plants have successfully prospered the Earth and formed a great plant kingdom. Ranging from ordinary grass to tall trees, different plants produce various leaves, colorful flowers and all kinds of fruits. Also there are plants possess some unique characteristics other than ordinary ones. For instance, the sensitive plant's (*Mimosa pudica*) shyness to external forces, the dancing grass' (*Codariocalyx motorius*) dance to music, the insectivorous plants' peculiar ways of feeding, mimicry plants' effective defense, mangrove's viviparous propagation, ect., all of which bring you amazing surprise and fantastic fun.

奇异植物室 导游图

Rare and Exotic Plant Conservatory



奇异花卉 - 瓷玫瑰

Porcelain Rose

瓷玫瑰 (*Etilingera elatior* (Jack) R.M.Smith), 姜科 (Zingiberaceae) 火炬姜属的草本植物, 又叫火炬姜。多年生大型草本植物, 丛生。株高3-6m, 具根状茎; 叶互生, 二行排列, 长圆状披针形, 叶色深绿, 光滑, 长约50cm, 宽15cm左右。头状花序由地下茎抽出, 挺直, 直径15cm左右, 玫瑰花型, 花瓣革质, 表面光滑, 亮丽如瓷, 50-100瓣不等, 排列整齐。

瓷玫瑰原产哥伦比亚、厄瓜多尔、印度尼西亚、印度等地, 性喜高温多湿, 稍耐阴。现在很多国家已经开始作为切花植物进行栽培。

Porcelain rose (*Etilingera elatior* (Jack) R. M. Smith), Zingiberaceae, also called "Torch Ginger", is a herbaceous perennial plant. It usually grows in large clumps, 3-6 m tall. Its leaves are up to 50X15cm. The scape rises from the rhizome to a height of 1-2m. The inflorescence looks like a rose and the individual flower involves 50-100 pinkish and bright perianth segments.

Porcelain rose is native to Colombia, Ecuador, Indonesia, and India. The plant is now cultivated in many tropical areas for cutting flower materials.



炮弹树

(*Couroupita guianensis* Aubl.)

果形奇特的炮弹树

Cannonball Tree

炮弹树(*Couroupita guianensis* Aubl.), 玉蕊科(Lecythidaceae)落叶大乔木。高达15米, 叶片尤如一个个巨掌般, 聚生于小枝顶端。花红色, 一朵朵排成长长的穗状花序, 生于树干或老枝上。聚生雄蕊紫红色, 发出淡淡的清香。花瓣腊质光亮, 色彩艳丽, 外形美观, 引人瞩目。果实圆球形, 大如拳头, 像长满铁锈的古老炮弹, 从树干一直到地面, 一串串地挂在树干上, 非常壮观。

原产于南美洲圭亚那地区。在南亚尤其是斯里兰卡、马来西亚等地被格外重视而栽植, 炮弹树被赋予了佛教文化色彩, 花常被用于佛教礼仪。

Cannonball tree (*Couroupita guianensis* Aubl.), Lecythidaceae. Deciduous tree, up to 15m tall. Leaves fascicled at ends of the shoots. Ramiflory or cauliflory. Inflorescence long and racemes, with red flowers. Fruits globose, clustered, large and hanging, look like big rusty cannonballs. It is native to South America, in Sri Lanka and Malaysia, its flowers are considered of special significance in Buddhist culture.

二岐鹿角蕨

Staghorn Fern

二岐鹿角蕨 (*Platycerium bifurcatum* (Cav.) C. Chr.), 鹿角蕨科 (Platyceriaceae) 附生性蕨类植物。株高40–50cm。叶丛生, 下垂, 有营养叶和孢子叶之分。营养叶圆形, 边缘波状, 嫩叶绿白色, 老叶棕黄色; 孢子叶顶端分叉, 形似梅花鹿角, 灰绿色, 叶面密生短柔毛, 叶背着生孢子囊群。形态古雅别致, 是室内观叶植物中的精品。它是一种亚热带耐阴植物, 常附生于悬崖峭壁或乔木枝干上, 一辈子不开花结果, 自然繁衍却另有方式—孢子叶背面长着无数孢子, 孢子成熟后随风传播, 当落到悬崖峭壁或古木上又萌发成苗, 终生度着上不到天下不着地的空中生涯。

Staghorn fern (*Platycerium bifurcatum* (Cav.) C. Chr.), Platyceriaceae. It distributed in the tropics and subtropics, attaching at the reefs or growing on tree branches. Different from the common plants, staghorn ferns never generate flowers and seeds, but instead, it can produce plenty of spores at the abaxial side of the upright, forked and green fertile fronds. The sterile fronds have the function of storage and will turn brown as the fern ages.



奇异植物—铁西瓜

Calabash Tree

您见过树上长出来的西瓜吗？这里介绍一种奇特的植物，叫铁西瓜，果实就象大西瓜一样，高高地悬挂于树上，但果肉口感不良，不能食用；因果壳坚硬，常用来制作容器或工艺品。还是一种老茎生花植物。铁西瓜(*Crescentia cujete* Linn.)，别名葫芦树、瓠瓜树、炮弹果，为紫葳科(Bignoniaceae)常绿小乔木。高可达10米，树干通直，树形舒展。叶丛生，2-5片，大小不等，阔倒披针形。花淡绿黄色，单生于小枝或老茎上，花冠钟状，具褐色脉纹，四季开花；浆果卵圆状球形。原产于热带美洲地区，现热带和亚热带地区均有栽培。

Calabash tree (*Crescentia cujete* Linn.), Bignoniaceae. Evergreen tree, up to 10m tall, with straight stem and spreading crown. Leaves clustered, 2-5. Flower solitary, cauliflory. Corolla yellowish green, with red or purple veins, cup-shaped. Berry ovoid, with smooth and hard shell, hanging on the trunk. It is native to tropical America, now cultivated in many tropics and subtropics of the world.



制造甜蜜的神秘果

Miracle Fruit

神秘果 (*Synsepalum dulcificum* Denill)，山榄科 (Sapotaceae)，原产西非至刚果一带，枝叶繁茂，全年开花，花小，乳白或乳黄色；浆果形如枣核，成熟后鲜红色，肉薄微甜，含蛋白酶，使人在吃后的1-2个小时内吃任何酸的东西都感觉甜甜的。西非热带居民常用来调节食物的味道，常在饮用棕榈等植物酿制的劣质酒时先吃点神秘果，劣质酒就变得香醇可口了。据说，西非人举行婚礼时也吃神秘果，寓意生活美满、甜甜蜜蜜。神秘果可鲜食，也可制成酸性食品的助食剂、甜味的变味剂等。

Miracle fruit (*Synsepalum dulcificum* Denill), an evergreen shrub in the family Sapotaceae. Native to West Africa. Flower all the year round, small flowers with milky whitish color. Berries bright reddish when ripen, thin pulp with sweet taste, containing a glycoprotein molecule called miraculin which perform the magic effect to make everything bitter and sour taste sweet for the next one hour or two. In West Africa, the local tribesman ate the fruit first before drinking coarse palm wine to modify the acerb taste into sweet. Fruits can be made into seasoner or sweetener to the sour food.

面包树

Breadfruit

从树上长出来的面包，你见过吗？这种树叫面包树（*Artocarpus altilis* (Parkinson) Fosberg），桑科（Moraceae）常绿乔木，高达十几米，手掌般的叶子，果实成熟时黄色，像西瓜一样大，营养丰富，富含淀粉、维生素、蛋白质和脂肪，但不能生吃，八成熟时就采下来，切成薄片，放在火上烤，散发出面包香味，吃起来松软可口，酸中有甜，别有风味。

面包树分布在中南半岛、印度半岛，巴西、墨西哥和太平洋的一些群岛上，是当地居民不可缺少的粮食。树形优美，绿荫浓郁，适合做园林风景树，木材可制器具。

Breadfruit (*Artocarpus altilis* (Parkinson) Fosberg), Moraceae. It is a tree and fruit native to the Malay Peninsula and western Pacific islands. It has also been widely planted in tropical regions elsewhere. Breadfruit trees grow to a height of 20m. The large and thick leaves are deeply cut into pinnate lobes. All parts of the tree yield latex, a milky juice, which is used for boat caulking. The trees are monoecious, with male and female flowers growing on the same tree. The pollinators are Old World fruit bats. The compound, false fruit develops from the swollen perianth and originates from 1,500-2,000 flowers. These are visible on the skin of the fruit as hexagon-like disks. Breadfruit is one of the highest-yielding food plants, with a single tree producing up to 200 or more fruits per season. Productivity varies between wet and dry areas.

魔鬼文心兰

Psychopsis papilio

魔鬼文心兰(*Psychopsis papilio* (Lindl.) H.G.Jones)又名蝴蝶文心兰，远看就像花丛中纷飞的彩蝶，近看又像盛服裙裾的舞娘，是兰科中极富观赏性的植物。原产中南美洲。叶厚革质，形如兔耳，叶背常有紫红色斑点，假鳞茎粗大。花序细长，春季从假鳞茎基部抽出。花单生于花序顶端，外形似蝴蝶，线状的花瓣如触须，黄褐斑纹的侧萼片像翅膀，宽大的唇瓣仿佛富有动感褶皱的华丽舞裙，使人赏心悦目。花期约15-20天；花谢后，间隔几周花序顶端又产生新的花芽，几乎常年开花。其栽培种*Psychopsis papilio* var. 'alba'金黄色，也很迷人。

Psychopsis papilio is a sympodial epiphyte with moderate size. Pseudobulbs are clustered compressed. Leaves are rigidly erect, dull green, and mottled or blotched with purplish red on back side. Inflorescences are erect to arching and flattened in the upper portion where single flowers are produced in succession over a period of several weeks. The inflorescence should not be removed after flowering as it usually continues to elongate and produce additional blooms for weeks. The butterfly-shaped flowers have dull reddish crimson sepals, petal yellow with red-brown markings, yellow lip margin and spotted with red-brown. Distributed in Central and South America. *Psychopsis papilio* var. 'alba' is the striking yellow one.

出色的舞蹈家——跳舞草

The Excellent Dancer — Telegraph Plant

跳舞草（*Codariocalyx motorius* (Houtt.) Ohashi）为蝶形花科小灌木，高达1.5m。三出复叶，花紫红色，7-9月盛放。原产我国南部，分布于亚洲热带地区。当气温达24°C以上且无风雨时，小叶闻声起舞，左右摆动，上下弹跳，时快时慢，周而复始。当气温达28°C至34°C之间，特别雨过天晴、阴天跳动更具戏剧性，叶片如久别的情人重逢，双双拥抱，又似蜻蜓点水上窜下跳，生动有趣。傍晚，叶片竖贴枝干，紧紧依偎，犹如静静休息，真是植物界罕见的景观。另外，它还具药用和美容价值。

Codariocalyx motorius, the telegraph plant, is a tropical Asian shrub, one of a few plants capable of rapid movement; others include Mimosa and the Venus Flytrap. It bears trifoliate leaves and can reach up to 1.5m when it is grown in full soil in the garden. It produces small purple flowers in July to September. This plant is famous for its movement of small lateral leaflets which rotate on their axis and jerk up and down with a period of about 3 to 5 minutes. The young leaves move to the music played to it. But all the leaves are pendulous in the evening. It is a rather rare, attractive plant. Besides the plant has medical and beauty value.



● 植物水族馆

Aqua-Forest Aquarium

植物水族馆展示面积约130m²，由环绕奇异植物室的37个大型玻璃展示箱组成，让游人通过透明玻璃直观地欣赏和探究各种水生植物奇妙的水下世界。水族馆用水族箱的形式，以巧妙的构思、新颖的手法，创造性地展示了沉水植物多姿多彩的植物形态和丰富的植物种类，共展示了26个科300多种沉水植物。在这里，这些神奇的水草与石材、沉木一起，通过艺术的表现手法，营造出山川飞瀑、小桥流水、大江平湖、森林、荒漠等梦幻般的景观，令人叹为观止。

水族馆按照水草的原产地分为亚洲水草区、非洲水草区、大洋洲水草区、美洲水草区和欧洲水草区等五个区域，按不同区域的水域和生境特点营造出不同风格的水下景观。

The Aqua Forest Aquarium in SCBG is about 130 m² formed by 37 large aquariums around the Rare and Exotic Plant Conservatory. People can view and explore the various aquatic plants in the underwater world visually via the transparent glass. The Aqua Forest Aquarium was ingeniously conceived and adventurously designed to present various plant shapes and abundant plant species. There are 26 families and more than 300 submerged aquatic plant species. Here the magical aquatic plants grow with stones and submerged logs which artistically build up a romantic sight with mountains and cascades, bridge and stream, river and lake, forest and desert, etc.

The Aqua Forest Aquarium is divided into several sections such as Asian, African, Oceanian, American and European section according to the origin of the aquatic plant. In each section, we build up particular sight in the light of the characteristics of their origin habitats.



● 沉水植物

Submerged Plant

沉水植物是整个植物体沉没于水中的植物。根往往扎于水中的土壤或漂浮于水中，通气组织特别发达，有利于在水中缺乏空气的情况下进行气体交换，植物体的各部分都可吸收水分和养料；叶片通常呈线形、带状或丝状，柔软的茎叶会随流水和水位调整而弯曲，并使身体完全沉没在水中；大部分种类在开花时将花挺出水面以便授粉、少数种类连开花也在水中进行。沉水植物多生长在水较深的地方，是典型的水生植物。常见的有苦草 (*Vallisneria natans* (Lour.) H. Hara)、金鱼藻 (*Ceratophyllum demersum* L.)等。

Submerged plants are rooted plants with most of their vegetative mass below the water surface, although some portions may stick above the water. Their roots usually submerge in the soil or float in the water. A distinctive feature of submerged plants is their well-developed aerenchyma, which helps gas exchange under the conditions of lacking of air in the water, and each part of the plant can absorb water and nutrients. Another discerning characteristic of submerged plants is their linear, ribbon-shaped or filament-shaped leaves and flaccid or soft stems, which adjust or bend with the water current. Most species have their flowers rise above the water's surface in order to be pollinated when bloom, while a few types carry out pollination underwater. Submerged plants usually distribute in deep water area and are typical aquatic plants. Common species are: eelgrass (*Vallisneria natans* (Lour.)H. Hara), ceratophyllum (*Ceratophyllum demersum* L.) and so on.



● 欧洲水草区

欧洲水草展示区由7个水族箱组成，以荷兰和德国式水草景观风格为代表。荷兰式景观风格采用黄金分割的理念，依据美学理论，突出高贵、华美的格调；植物以椒草类水草为主，阶梯式展示，层次分明，并注重水草之间叶型与色彩的搭配。德国式造景风格崇尚自然和科学，强调生态和谐，展现高科技的威力和大自然的魅力；以开放式布局，体现粗犷的自然美。

European Aquatic Plant Section

The European aquatic plant exhibition section is formed by seven aquariums and represented by Dutch and German style. Dutch style follows golden section theory; Inherits aesthetical ideology and highlights dignity and resplendency. Peperomia aquatic plants are the dominating plants and being displayed well in tiers. Meanwhile, the coordination of their blade profiles and color are also emphasized. While German style advocates nature and science, highlights harmony in the ecosystem; displays power of high technology and charm of the nature; allocates the plants openly to exhibit the bold and natural beauty.



● 美洲水草区

美洲水草展示区由7个水族箱组成，骨架景观以沉木为主要材料，配以适量的黄蜡石，水草以大型的皇冠草系列为主，再配以一些色彩缤纷、靓丽夺目的水草，并在沉木、景石上缠绕南美鹿角苔，共同勾勒出南美古老而神秘的亚马逊河流域的原始水域景观。

American Aquatic Plant Section

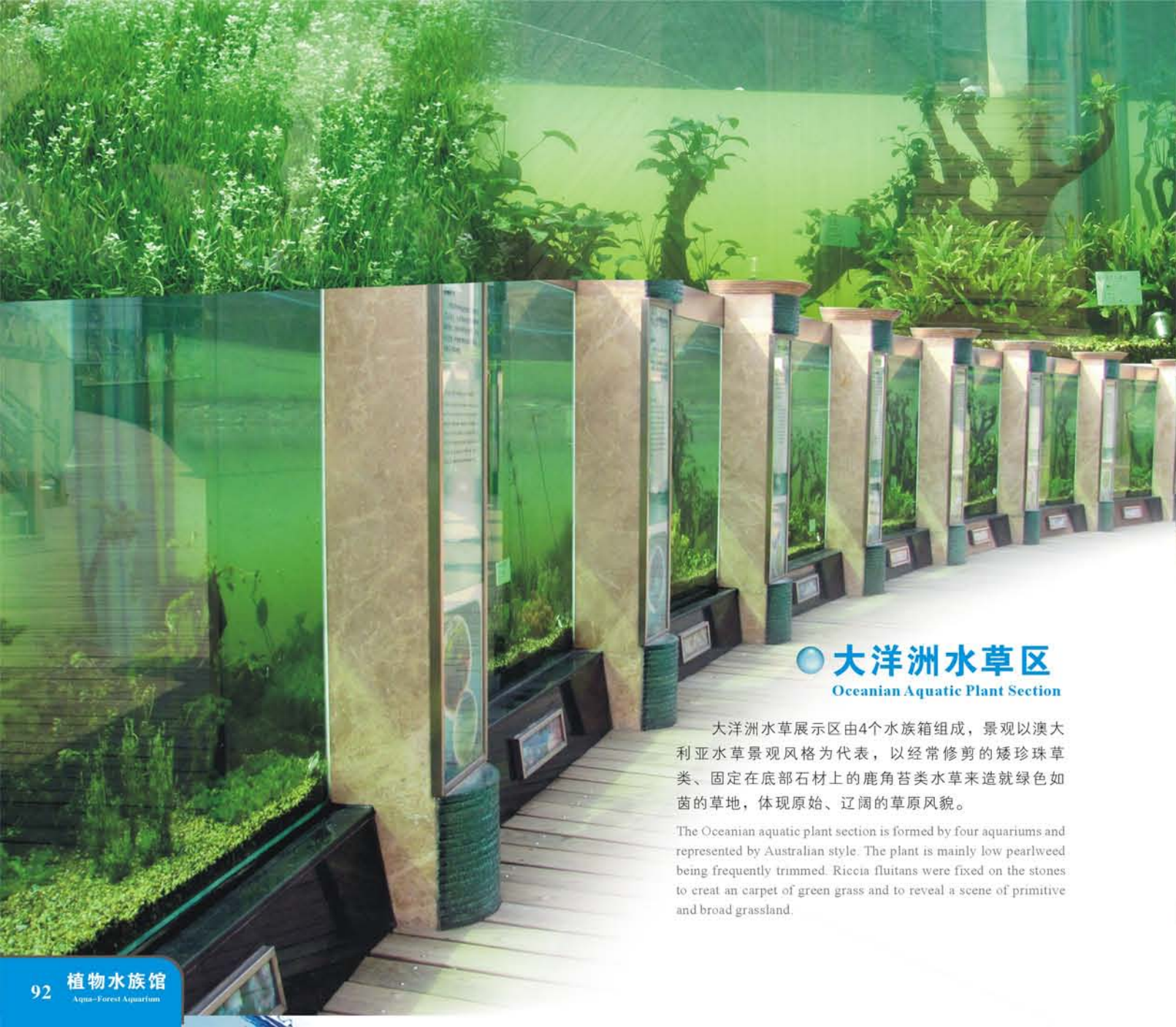
American aquatic plant section is formed by seven aquariums. The landscaping skeleton is mainly made by submerged logs, served with chrismatite. Amazon sword plants is the dominant plant and supplemented by brightly colored aquatic plants. South America Riccia fluitans are wrapped around the submerged logs and dendritic stones, which have outlined the original scenery of the old and mysterious amazon river.

● 亚洲水草区

亚洲水草展示区由12个水族箱组成，主要种植原产亚洲的水草如：椒草类、水车前类等。景观主要分为中国式、日本式和东南亚式三种风格。其中中国式以山水画为构图蓝本，营造一种山清水秀、明洁素雅的格调意境；日本式以枯山水的园林风格以及严谨的水草形态搭配，展现清丽脱俗的格调；东南亚式以椒草为主要造景材料，塑造出开阔明朗的亚洲水域风情。

Asian Aquatic Plant Section

The Asian aquatic plant section is formed by twelve aquariums. Plants are mainly original from Asia, including peperomia aquatic plants, *Ottelia olismoides* etc. The landscape style was represented by Chinese style, Japanese style and Southeast Asian style etc. Chinese style based on the landscape painting to build a picturesque scenery. Japanese style highlights Karesansui and precise coordination of plant shapes in simple but elegant way. While for Southeast Asia style, peperomia aquatic plants is the major landscaping plant used to display the manner of open and lucid Asian waters.



● 大洋洲水草区

Oceanian Aquatic Plant Section

大洋洲水草展示区由4个水族箱组成，景观以澳大利亚水草景观风格为代表，以经常修剪的矮珍珠草类、固定在底部石材上的鹿角苔类水草来造就绿色如茵的草地，体现原始、辽阔的草原风貌。

The Oceanian aquatic plant section is formed by four aquariums and represented by Australian style. The plant is mainly low pearlweed being frequently trimmed. Riccia fluitans were fixed on the stones to create a carpet of green grass and to reveal a scene of primitive and broad grassland.



● 非洲水草区

African Aquatic Plant Section

非洲水草展示区由6个水族箱组成，主要展示原产非洲的以天南星科水榕类为主的水草。以河川为场景，用沉木、砂积石、水榕以及攀附生长的黑木蕨、莫丝等营造出原始、狂野、粗犷的西非水域景观。

This section is composed of six aquariums, mainly exhibits all kinds of water ficuses of Araceae family. Based on a river background, an original, wild and rugged landscape of west African waters scenery is being created by using sweep wood, granulated stones, water ficuses, creeping ferns(*Bolbitis heudelotii*) attached to rocks or wood by its rhizomes, moss and so on.