

秦巴山区

野生观赏植物

WILD ORNAMENTAL PLANTS
IN QINLING-BASHAN MOUNTAIN AREA

主编 李思锋 黎 斌



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前言



野生观赏植物是指具有一定观赏价值、处于野生状态的观赏树木、花卉以及地被草本植物，其中绝大多数种类尚未被大规模地栽培应用。它们大多形态优雅，色彩丰富，风韵别致，无论自然生长在山川原野，还是引种栽植在城市公园、绿地、庭院或居室内，均能为环境增美添色，美化人类生活，是大自然恩赐给人类的宝贵财富。更为重要的是，野生观赏植物种质资源是花卉苗木育种的物质基础，对其进行调查、收集和引种是促进花卉苗木产业持续、协调发展不可或缺的推动力。因此，国内外都很重视观赏植物种质资源的调查研究工作。我国是园林花卉资源大国，曾对世界园林园艺发展作出过重大贡献。自20世纪70年代起，植物学研究者就对我国的野生观赏植物资源，进行广泛的调查研究，引种筛选出一大批有前景的园林绿化植物、花卉育种材料和新型的花卉种类。近年来，随着经济发展和物质生活水平的提高，各地都很重视城市生态环境建设，不仅要求城市绿化、美化，而且要求有个性化，当地野生观赏植物的应用正是表现城市个性的要素之一。各类观赏植物资源，尤其是乔木和花灌木，正逐渐被开发应用于城市绿化建设中。因此，调查研究和开发利用当地的野生观赏植物资源，对于培育园林花卉新品种，丰富城市园林绿化植物多样性，提高园林绿化水平，都具有非常重要的意义。

秦巴山区位于中国大陆的中心区域，地跨陕、甘、川、渝、鄂、豫等6省市，是我国南北气候、生物区系的交汇地带。它的主体部分位于陕西省南部，由陕西境内的秦岭山地、巴山山地及其之间的汉江谷地三部分构成，介于北纬 $31^{\circ}42' \sim 34^{\circ}45'$ 、东经 $105^{\circ}46' \sim 111^{\circ}15'$ 之间，包括汉中、安康、商洛3市及宝鸡市、西安市的一部分，总面积约 8.3万 km^2 。本书所指的范围为陕西境内的秦巴山区。

秦巴山区地处我国北亚热带向暖温带的过渡地带，地理位置特殊，地貌类型丰富，地形复杂，气候温暖湿润，雨热同季，年平均气温 $7 \sim 15^{\circ}\text{C}$ ，无霜期 $200 \sim 240 \text{d}$ ，年均降水量 $800 \sim 1200 \text{mm}$ ，加之由于受第四纪冰川的影响较小，为各种生物种类的产生、繁衍和保存提供了优越的条件。秦巴山区是全球陆生生物多样性最丰富的地区之一，有种子植物4000余种，约占全国种子植物种类的 $1/7$ ，其中，仅秦岭山地就有197科1007属3446种（含种下等级），其种子植物多样性在全国的著名山脉中名列前茅。该区具有茂密的森林植被，保存有东亚地区最完整的山地森林生态系统。从北到南，植被带相应地为暖温带落叶阔叶林带与北亚热带常绿落叶阔叶混交林带。自东向西，随着降水量的减少，秦巴山区的植被主体由阔叶林逐渐变化至针叶林直至以高寒草甸为主的草原植被。在本区的太白山，随海拔高度变化还形成了完整的、层次清晰的植被垂直带谱，成为东亚地区山地植被垂直带划分对比的标准之一。

秦巴山区野生观赏植物资源种类繁多，是世界上观赏植物资源多样性最丰富的地区之一。据统计，在秦巴山区4000余种种子植物中，具有重要观赏价值的植物有117科1800种以上。观赏种类在50种以上的大科有蔷薇科、豆科、槭树科、菊科、兰科、毛茛科、虎耳草科、玄参科、唇形科等；具有极高的观赏价值的珍稀花卉，如兰科植物，在秦巴山区有42属81种，包括杓兰属（7种）、虾脊兰属（5种）、石斛

属(3种)、蝴蝶兰属(1种)、兰属(2种)、白及属(3种)等;世界四大野生高山花卉杜鹃花、报春花、马先蒿、龙胆等4属植物,在秦巴山区分别有26种、16种、22种、19种。秦巴山区既有起源自热带地区的观赏植物如山楠、宜昌润楠、无患子、紫金牛、老鸱铃、臭牡丹、海桐、山合欢等,又有典型的温带地区观赏植物如鹿蹄草、短枝六道木、红柄白鹃梅、华北紫丁香、椭圆叶花锚、山梅花、淫羊藿、红花锦鸡儿等,还有本区的特有观赏植物如陕西石蒜、太白贝母、涝峪小檗、太白山紫斑牡丹、太白美花草、秦岭乌头、太白野豌豆、庙台槭等。在秦巴山区,有雄伟高大、多姿多彩、形态优美而奇特的高大乔木,繁花似锦、色彩斑斓的灌木,小巧玲珑的草本花卉,也有亭立于水中或漂浮于水面之上的水生花卉,攀援、附生于岩石、悬崖及树干上的藤本植物,各种类型的观赏植物应有尽有。秦巴山区一年四季均能欣赏到色泽艳丽、风姿绰约、香馨四溢的野生花卉。晚冬早春时,少花顶冰花、山蜡梅、款冬等植物的花就破冰而出,给寒冷单调的冰雪世界涂上斑斓色彩。紧接着,在春风的吹拂下,诸如山茱萸、武当木兰、连翘、迎春花、紫堇等吐出新叶,竞相绽放出五颜六色的花朵,向人们表达着春回大地的喜悦。到了夏季,满眼全是千姿百态、朝气蓬勃的绿色世界。而在秋高气爽的日子里,鲜红色、金黄色的累累硕果便会挂满了枝头树梢,层林尽染,万紫千红。进入冬季,扎根于亚高山上饱经沧桑、古朴苍劲的松杉,顶寒风,傲霜雪,无不给人以震撼。可以说,整个秦巴山区就是一个美丽的“大花园”,一个丰富多彩的“观赏植物王国”,一座园林观赏植物的“种质库”。

秦巴山区野生观赏植物资源丰富,观赏价值高,应用潜力巨大,但迄今为止还没有一本系统介绍秦巴山区野生观赏植物的著作。从20世纪90年代以来,我们对秦巴山区野生植物资源进行了数十次的野外调查。特别是近年来在完成国家科技基础性工作专项“秦巴山区生态群落与生物种质资源调查”及陕西省秦巴山区植物资源调查研究有关项目期间,我们重点对秦巴山区野生观赏植物资源进行了全面深入地调查研究,拍摄了1200余种植物3万多张照片。在此基础上,我们编著了这本《秦巴山区野生观赏植物》,以图谱的形式出版。本书旨在为从事野生观赏植物资源保护与利用研究的农林科技人员提供一部图文并茂的工具书,也为园林花卉科研工作者了解秦巴山区观赏植物资源状况提供一部直观的鉴赏图谱。

本书收录了秦巴山区野生植物观赏植物575种,隶属于94科349属,配有图片805幅。每种植物都配有1~3张反映其整体景观或观赏部位或生境的彩色照片,并用中、英文简要介绍了其形态特征、花果期、生境,有些种类还介绍了它的园林用途。为了使用方便,书中的科名排列,裸子植物按照郑万钧系统,被子植物按照恩格勒-第尔斯(Engler-Diels)系统,科内的属名和种名按拉丁文字母顺序排列,书末还附有中名和拉丁学名索引。需要特别说明的是,许多观赏价值很高的植物,由于野外调查时未见,或由于拍摄的照片质量欠佳而没能被收录入本书中,实为遗憾!

本书的编著出版得到了国家科技基础性工作专项“秦巴山区生态群落与生物种质资源调查”(2007FY110800)以及陕西省科学院、陕西省科技厅、陕西省财政厅、西安市科技局等单位的资助,得到了陕西省西安植物园、陕西省植物研究所的大力支持。野外调查工作得到了西北农林科技大学陈彦生、吴振海、郭晓思,太白山国家级自然保护区李智军,佛坪国家级自然保护区党高弟等同志的大力协助;本书“前言”的英文翻译由张燕女士完成;承蒙袁永明博士提出宝贵的修改意见,陕西省文学艺术界联合会副主席、陕西省书法家协会主席雷珍民先生题写书名。在此一并表示谢忱!

由于编著时间及我们的知识水平所限,书中疏漏和错误在所难免,敬请读者指正。

编著者

2009年3月于西安

Preface



Wild ornamental plants refer to the ornamental trees, flowers and ground cover plants which have decoration values, are in a wild state and have not yet been cultivated on a large scale. For their elegant shape, rich colors and unique charm, whether naturally growing in the mountains, on the wastelands or being introduced to the city parks, green spaces, courtyards or to the rooms, all ornamental plants can add beauty to the environment and bring people great pleasure. It is the valuable wealth and precious heritage presented by the nature. It is more important, that the germplasm resources of the wild ornamental plants are the fundamental material bases for breeding and cultivar improvement of flower plants and nursery stocks. Carrying out the background investigation, collection and introduction of the wild ornamental plants are the indispensable propelling forces to promote the sustainable and harmonious development of the flower and seedling production. Therefore the investigation and research of the germplasm resources of the wild ornamental plants are paid widespread attention both in China and abroad. China is abundant in ornamental plant resources and has made great contributions to the development of international horticulture. Since the 1970s, Chinese botanists have done extensive investigations on the wild ornamental plant resources of China. Many promising garden plants, nursery stocks for flower breeding and new types of flowers have been introduced and selected. In recent years, with the development of economy and the improvement of people's living standard, urban ecological environment construction has received more and more attentions almost everywhere in China. The cities require not only general urban greening and beautification, but also individualization and characterization. The application of the local wild ornamental plant resources is just one of the factors to display the urban characteristic. Various types of ornamental plants resources, especially trees and flowering shrubs, have been gradually applied to the construction of urban greening. Therefore, the investigation and utilization of local wild ornamental plant resources have a great significance to breed new cultivars of flowers, enrich the species diversity of urban greening plants, and improve the landscape level.

Qinling-Bashan Mountain Area is located at the central part of the Chinese Mainland and spans Shaanxi, Gansu, Sichuan, Hubei, Henan and Chongqing. It is the climate division and the connective region of the fauna and flora between the northern and the southern China. The core part of the area is located at the south of Shaanxi Province and consists of three parts, i.e. Mt. Qinling, Mt. Bashan and the Hanjiang River plain between the two mountains. This area lies between $31^{\circ}42' \sim 34^{\circ}45'N$ and $105^{\circ}46' \sim 111^{\circ}15'E$ and includes three cities i.e. Hanzhong, Ankang, Shangluo and parts of Baoji City and Xi'an City. Its total surface is approximately 83000 km². The referential range in this book is Qinling-Bashan Mountain Area in Shaanxi Province.

Qinling-Bashan Mountain Area is situated at a transitional zone in China which is from the north subtropics to the warm temperate with unique geographical features, complex landforms and varied terrains. Its climate is warm and humid with rainy season and hot season in the same quarter, annual average temperature of $7 \sim 15^{\circ}C$, frostless period of 200~240 d and annual average precipitation of 800~1200 mm. Subjected to little impact of the quaternary glaciation, this area provides the superior environments of diversification, multiplication and conservation for various kinds of species. As one of the regions having the most abundant terrestrial biodiversity in the world, Qinling-Bashan Mountain Area has more than 4000 species of seed plants, approximately accounting for 1/7 of the seed plant species in China. Especially the species diversity of Mt. Qinling with 3446 species (including infraspecific taxa) belonging to 1007 genera of 197 families in seed plants comes out top in famous mountains in China. Having lush forest vegetation, the Qinling-Bashan Mountain Area preserved the most complete mountain forest ecosystem in the East Asia. From the north to the south, the vegetation changes from the warm temperate deciduous broad-leaved forest to the north-subtropical evergreen and deciduous broadleaved mixed forest. From the east to the west, along with the decrease of precipitation, the vegetation changes gradually from broad-leaved forest to coniferous forest and grassland dominated by alpine meadows. With the changes of altitude, Taibaishan Mountain in this area displays a complete series of clearly-structured vertical zones of vegetation which is regarded as one of the model standards for division and comparison of vertical spectra of mountain vegetations in the East Asia.

The Qinling-Bashan Mountain Area is rich in wild ornamental plant resources and is one of the regions which have the most abundant diversity of ornamental plant species in the world. According to statistics, of the over 4000 indigenous species of seed plants, more than 1800 species, which belong to 117 families, have important ornamental value in this area. The families which have more than 50 ornamental species are Rosaceae, Leguminosae, Aceraceae, Compositae, Orchidaceae, Ranunculaceae, Saxifragaceae, Scrophulariaceae, Labiatae, etc. For examples among the high valued precious and rare ornamental plants, the orchid family has 81

species belonging 42 genera occurred in Qinling-Bashan Mountain Area, namely, *Cypripedium* (7 sp.), *Calanthe* (5 sp.), *Dendrobium* (3 sp.), *Phalaenopsis* (1 sp.), *Cymbidium* (2 sp.), *Bletilla* (3 sp.). The four most famous alpine flower taxa, *Rhododendron*, *Primula*, *Pedicularis* and *Gentiana* each has 26, 16, 22, and 19 species respectively in Qinling-Bashan Mountain Area. There are not only the ornamental plants originated from tropical regions such as *Phoebe chinensis*, *Machilus ichangensis*, *Sapindus mukorossi*, *Ardisia japonica*, *Styrax hemsleyana*, *Clerodendrum bungei*, *Pittosporum tobira*, *Albizia kalkora*, etc, but also the typical temperate ornamental plants such as *Pyrola calliantha*, *Abelia engleriana*, *Exochorda giraldii*, *Syringa oblata*, *Halenia elliptica*, *Philadelphus incanus*, *Epimedium sagittatum*, *Caragana rosea*, etc. Some ornamental plants are endemic to this area, such as *Lycoris shaanxiensis*, *Fritillaria taipaiensis*, *Berberis gilgiana*, *Paeonia rockii* ssp. *taibaishanica*, *Callianthemum taipaicum*, *Aconitum lioui*, *Vicia taipaiica*, *Acer miaotaiense*, etc. There are almost all types of ornamental plants in Qinling-Bashan Mountain Area, including the imposing colorful graceful and exotic tall tree, bloomy and iridescent shrubs, little herbaceous flowers, submerged or floating aquatic flowers, and liana which growing on rocks, cliff or tree trunks. Brightly colored, charming and aromatic wild flowers are found all the year round in Qinling-Bashan Mountain Area. In late winter or early spring, the flowers of *Gagea pauciflora*, *Chimonanthus nitens* and *Tussilago farfara* grow up to break through snow ice, given frigid and monotonous ice world some gorgeous color. Subsequently, under the sway of spring breezes, the flower plants such as *Cornus officinalis*, *Magnolia sprengeri*, *Forsythia suspense*, *Jasminum nudiflorum*, *Corydalis edulis* send forth new leaves and bloom variously colored flowers to express the joy of that spring is upon us again. In summer, the multiform and youthful green world will fill our eyes. In autumn, the trees are laden with vivid red and aureate fruits and the leaves of many trees are tinged with autumn red in the forest. In winter, the weather-beaten and vigorous conifers rooted in subalpine go against the cold wind, frost and snow that gives people very strong convulsion. In a word, the whole Qinling-Bashan Mountain Area is a beautiful garden, a diversified kingdom of ornamental plants and a germplasm repository of landscape and ornamental plants.

The wild ornamental plants are rich in resources, and have high ornamental value and huge potential of utilization in Qinling-Bashan Mountain Area, but so far there has not been a book to systematically introduce the wild ornamental plants of this area. Since the 1990s, we have conducted lots of surveys of wild plant resources in Qinling-Bashan Mountain Area. Especially in recent years, during we accomplished the project "Investigation of Ecological Communities and Biological Germplasm Resources in the Qinling-Daba Mountains" supported by the National Basic Research Special Program of China and the project "Investigations on Plant Resources of Qinling-Bashan Mountain Area of Shaanxi Province", we have extensive surveys on the wild ornamental plant resources of Qinling-Bashan Mountain Area and have taken more than 30000 photos of approximately 1200 species of plants. Based on these collections, we compiled this picture illustration book, *Wild Ornamental Plants in Qinling-Bashan Mountain Area*. The aim of publishing this book is not only to provide a reference book including both high-quality picture and written explanations to the scientific and technical personnel engaged in the research of protection and utilization of wild ornamental plant resources, but also to provide landscape and flower researchers a well illustrated book to understand the resource status of ornamental plants of Qinling-Bashan Mountain Area.

575 species of wild ornamental plants belonging to 349 genera of 94 families from Qinling-Bashan Mountain Area are embodied in the present book with 805 pictures. Every plant is illustrated by 1~3 pieces of colour prints reflecting its whole form, ornamental part or habitat and is introduced by a brief summary on its morphological characteristics, flowering and fruiting times and habitat in both Chinese and English. The horticultural use of some species is also introduced. For ease of use, the arrangements of the families of gymnosperm and angiosperm are in accordance with the Zhang Wanjun's System and the Engler-Diels's System respectively in present book. The genera and species in the same family are arranged in alphabetical order. There is an index of Chinese names and Latin names at the end of the book. It needs a mention that it's a great pity that many plants having high ornamental value have not been embodied in this book because we hadn't collected those plants in our field investigation or the quality of the pictures could not satisfy publication.

The publication of present book is financially supported by the project of the National Basic Research Special Program of China "Investigation of Ecological Communities and Biological Germplasm Resources in the Qinling-Daba Mountain Area" (2007FY110800), key project of Shaanxi Academy of Sciences, Science & Technology Department of Shaanxi Province, Finance Department of Shaanxi Province and Xi'an Science & Technology Bureau. It also has received energetic support from Xi'an Botanical Garden of Shaanxi Province and Botanical Institute of Shaanxi Province. We were greatly aided in our investigation by the cooperation of Chen Yansheng, Wu Zhenhai, Guo Xiaosi from Northwest Agriculture & Forestry University, Li Zhijun from Taibai Mountain National Nature Reserve and Dang Gaodi from Foping National Nature Reserve. Ms. Zhang Yan translated the Preface from Chinese into English, Dr. Yuan Yongming made some valuable proposed correction on the Preface, and Mr. Lei Zhenmin who is the vice-chairman of Shaanxi Federation of Literature & Art Circles and the chairman of Shaanxi Calligrapher's Association wrote the inscription for this book. We would like to avail ourselves of this opportunity to express our acknowledgement of their valuable helps.

Due to the limit of the available time and our knowledge, we shall inevitably make some mistakes and oversights, and we would appreciate very much valuable corrections and comments from the readers.

The Editors
Xi'an, March 2009

《秦巴山区野生观赏植物》

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男，研究员，汉族，享受国务院特殊津贴专家，陕西省有突出贡献专家，陕西省劳动模范，陕西省“三五”人才。1960年11月生，陕西富平人。1982年毕业于兰州大学生物系，先后任陕西省中国科学院西北植物研究所植物分类研究室主任、副所长，陕西省微生物研究所所长，现任陕西省西安植物园主任，陕西省植物研究所所长，陕西省秦巴山区生物资源保护与利用工程技术研究中心主任，中国植物学会理事，陕西省植物学会副理事长，陕西省生命科学学会副理事长，陕西省花卉协会副会长，西安市花卉协会会长，中国林学会、农学会、遗传学会、细胞生物学学会会员。主要从事系统与演化植物学，植物资源保护与利用研究工作。先后主持国家和省部级科研项目30余项，发表论文60多篇，主编、参编专著5部，获省部级以上科技成果奖11项，其中主持完成的5项成果获陕西省科技进步二等奖。



黎斌

男，副研究员，汉族。1973年5月生，重庆梁平人。1996年毕业于兰州大学生物系细胞生物学专业，先后在陕西省中国科学院西北植物研究所植物分类研究室、西北农林科技大学生命科学学院从事植物学科研、教学工作，现任陕西省西安植物园生物多样性研究室主任，陕西省植物学会理事，西安市花卉协会理事。主要从事植物分类学、植物多样性保护、秦巴山区植物资源调查与开发利用等研究工作。先后主持或参加国家级研究课题8项、省部级及地市级研究课题24项。发表论文32篇，参编专著4部，获陕西省科技进步二等奖1项。

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