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中国地理志

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四川植物志

第五卷

第一分册

(种子植物)

FLORA SICHUANICA

Tomus 5 (1)

(Spermatophyta)

《四川植物志》编辑委员会



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内 容 简 介

本卷记载四川禾本科（狐茅族、小麦族）植物共 37 属 268 种 7 亚种 18 变种，约 50 万字，图版 172 幅，对科、族、属、种的名称、形态、产地、分布、主要参考文献及用途均作了记载。资料齐全，图文并茂。本书是一部地方性禾本科（狐茅族、小麦族）植物专著，可供生物、农业、畜牧、草学等科学研究、开发利用、资源保护等机构及有关学者参考。

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第五卷第一分册

被子植物门

单子叶植物纲

禾本科

(狐茅族、小麦族)

编辑

周永红

编著者

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Tomus 5 (1)

ANGIOSPERMAE

MONOCOTYLEDONEAE

POACEAE (1)

(Festuceae, Triticeae)

Redactor

Zhou Yonghong

Auctores

Ding Chunbang(Sichuan Agricultural University)

Festuceae (Lophatherum, Briza, Lolium, Eragrostis, Harpachne, Catabrosa, Dactylis, Enneapogon, Arundo, Phragmites, Neyraudia, Thysanolaena)

Hu Chao(Sichuan Agricultural University)

Festuceae (Festuca, Poa)

Yang Ruiwu(Sichuan Agricultural University)

Festuceae (Brylkinia, Melica, Schizachne, Glyceria, Littledalea, Bromus, Brachypodium, Orinus)

Zhou Yonghong(Sichuan Agricultural University)

Festuceae (Festuca, Leucopoa, Poa, Puccinellia, Melica, Scolochloa, Bromus, Cleistogenes, Eragrostis); Triticeae

前 言

四川省位于青藏高原东缘长江上游地区和我国的西南内陆腹地，介于北纬 $26^{\circ}03'—34^{\circ}19'$ 和东经 $97^{\circ}21'—108^{\circ}31'$ ，幅员面积 48.5 万平方千米。辽阔的地域、复杂多样的地貌类型、明显的气候分异孕育了丰富的植物多样性，主要表现为植物种类繁多，区系成分复杂，植物演化途径多样。全省地形大致可分为盆地和高原两大部分。东部为著名的四川盆地，河流纵横，丘陵起伏，在海拔 200—700 米（长江河谷仅 100 米左右），为四川主要农业区。盆地周围群山环绕，北部有秦岭、大巴山为屏障，减弱了北来寒流的侵袭；太平洋、印度洋暖流沿长江和横断山脉水系进入盆地，形成盆地温暖湿润的环境。盆地东部地层，由于自第三纪以来，未经剧烈变动，因而保存了世界上其它地区早已绝种的一些古老植物和一些单种属或少种属古老、孤立的类型。四川西部为高原和高山峡谷地形，海拔 3 500 米以上，峡谷纵列，雪山重叠，最高的贡嘎山，主峰海拔高达 7500 多米；海拔 4 000—5 000 米以上的高峰也较多。在这一地区有南北纵行的横断山系，这是我省地理特色之一。这一山系给植物区系的组成带来深刻影响，也是四川的主要林区之一。高原西北部有大面积沼泽、草地分布，为青藏高原的重要组成部分，是四川的主要牧区。四川复杂的地理条件和生态环境，孕育了繁多的植物类型，是我国植物资源最丰富的地区之一，约有高等植物一万余种，仅次于云南，居全国第二位。许多类群资源蕴藏量极为丰富，特别是川产珍稀植物为世界瞩目。但由于种种原因，对四川植物种类、分类缺乏系统整理，资源家底不清，远远不能满足对植物资源的保护和利用的需要。因此，编写《四川植物志》实属重要和必要。

四川省特殊的地理位置和多样的地貌及气候为植物的生长提供了有利的条件。丰富的植物种类，是四川省的宝贵财富。清理好四川省丰富的植物种类，是对全国物种多样性研究的贡献，将为研究植物的系统演化、植物区系、植被、生态系统等提供科学依据。在经济建设和环境保护中，《四川植物志》是基础的科学资料。编写《四川植物志》的目的就是通过对四川省植物资源进行科学而系统的清理，使其能为四川省的经济建设和科学发展提供不可缺少的基础资料。《四川植物志》作为科学资料，具有十分重要的和不可替代的科学价值。目前，生物多样性越来越受到世界各国的重视，要认识和研究生物多样性，必须首先知道物种多样性。《四川植物志》的编写，就是对四川省物种多样性的研究和记载，其科学意义不言而喻。四川省地处中国内陆，必须充分发挥自然资源优势，特别要重视植物资源丰富的优势，加速本省的社会和经济的发展，《四川植物志》对开展利用植物资源具有极其重要的科学指导作用。四川植物种类多，类型齐全，还保存了一

些被称为“活化石”的类群，如芒苞草、水杉、银杉、珙桐等都是世界著名的珍贵植物。四川及邻近地区植物的研究，将有助于探讨和解决有关被子植物的起源与植物地理学上的一些重大理论问题。因此，研究四川植物在理论上具有独特的意义。

《四川植物志》包括苔藓植物、蕨类植物、裸子植物和被子植物。苔藓植物以布罗氏 (V. F. Brotherus, 1924—1925) 的系统为基础，参考近年国内外有关系统编排；蕨类植物基本采用秦仁昌 (1978) 的系统；裸子植物采用郑万钧 (1961) 的系统；被子植物采用恩格勒 (Engler) 《植物科志》第 II 版 (1964) 的分类系统，分科编号，但各科不一定按顺序出版。《四川植物志》对所记载科、属、种的形态特征、地理分布、生态环境、科学意义和用途等均作了系统而详细的描述。为了方便读者使用本书，识别植物，书中列出了分属和分种检索表，所记载的植物，每卷约有百分之六十的种类附有图版。本书是按《四川植物志》统一的编写规范进行编写的。在编写过程中，全面检索国内外文献，反映最新研究成果，图文并茂，产地到市县，并且记载了生境和海拔等资料数据，便于读者实地考察；对重要的经济种类列出了具体用途，有利于开发利用。书中使用了国内通用的中名，同时尽量列出地方土名，有助于澄清长期存在的名称混乱。书中按照《国际植物命名法规》的要求对类群进行了分类学处理，使其成果能够进行国际交流。《四川植物志》为传世专著，为确保编写质量，在研究方法上，特别注意文献的考证、标本鉴定和种群的划分等问题。

《四川植物志》自 1981 年出版以来，历时 30 余年，在国内外产生了较好的影响，获得了较高评价。但后续各卷 (册) 的编辑出版，任务还很艰巨，尚需省内外植物学科科技工作者共同努力，始能完成《四川植物志》这一巨著。《四川植物志》编委会为著作权集体管理组织，行使著作权或者与著作权有关的权利。凡使用《四川植物志》已出版各卷 (册) 专著，应当同《四川植物志》编委会 (法人代表) 订立许可使用合同书，未同编委会签订书面合同书，任何人不得使用。《四川植物志》著作权，受中华人民共和国著作权法保护，任何单位或个人不得侵犯其权利或剽窃该项研究成果。

重庆市于 1997 年设立直辖市，原四川省所辖政区发生较大变化，重庆市及所辖市、区、县已不属四川省。但为了保持《四川植物志》项目的连续性、统一性和完整性，本书仍按原四川省所辖政区范围编写。本书在编写过程中，承蒙有关高等院校、科研单位的专家和科技工作者给予指导、帮助，对此表示十分感谢。由于水平有限，本书难免有缺点、错误，希望读者批评指正。

《四川植物志》编写委员会

PREFACE

Sichuan Province (26° 03'—34° 19' N and 97° 21'—108° 31') in Southwestern China locates in Eastern Tibet Plateau and the upper reaches of Yangtze River, and covers an area of more than 485,000 square kilometers. The far-flung terrain, complex and diverse landforms, clear climatic differentiation gestate and endue the region with abundant plant diversity, showing the characteristics of various plant species, miscellaneous flora, and diverse evolvments. The whole landform in Sichuan can be divided into two sections, i.e., basin and tableland. The former locates in the eastern Sichuan, and the latter distributes around the Basin. Sichuan Basin characterized by reticular river and rolling hill (altitude. 1. 200 m – 700 m) is the main agricultural region and plays important roles in economic and social development in Sichuan. The basin surrounded by many mountains, such as Mountains Qingling and Daba in Northern Sichuan, and Mountain Hengduan in Western Sichuan. As barriers, Mountains Qingling and Daba defend the invasion of cold snap from the north, and in turn lead to warm winter in the region. Meanwhile, the warm current coming from Pacific and Indian Oceans enter the basin along with Yangtze Rive and water system of Mountain Hengduan, which results in the humid and warm climate in Sichuan Basin. In particular, the antiquity and isolated plant (or type) of monotypic and oligotypic species which have already become extinct in other regions of the world are conserved in this area because the stratum in the east of Sichuan basin does not undergo acute alteration since tertiary. Western Sichuan is characterized by distributing plateau, alpine, valley, jokul and cliff widely. The average altitude of this area is above 3,500 metres, and many peaks range from 4,000 to 5,000 metres. For example, the peak of Mt. Gongga, the highest mountain in the region is 7,500 metres. Western subalpine forest, the second largest forest region in China, is the main body of Mountain Hengduan which is one of the 25 hotspots in biodiversity conservation in the world. The unique and complex physiognomy in Mt. Hengduan provides diverse habitats for plant biodiversity. As an important component in Tibet Plateau, Northwestern plateau consisting of large area of wetland and grassland is the main pasture in Sichuan. As described above, the complex geographic condition and ecological environment breed abundant plant species diversity, which makes Sichuan become the most abundant province of plant resources except Yunnan Province in China, and attract the attention of the world. However, there is a lack of enough information on systematical investigations and classifications on plant

resources due to various reasons, which is difficult to meet the demand of protection and utilization for plant resources. Therefore, it is very important to compile Sichuan Flora.

The particular geographic location, multiple physiognomy and climate in Sichuan are favorable to plant growth and reproduction. These abundant plant species are valuable wealth of Sichuan. To systematically sort out the plant species in Sichuan is very important for the species diversity investigation in China, which is helpful to provide scientific basis for deeply studying the plant systematics and evolution, floristics, vegetation and ecological system. In the process of economy construction and environment protection, Sichuan Flora is the basic scientific information. To compile Sichuan Flora by systematically and scientifically categorizing the plant species is to provide indispensable and basic information for the economy construction and scientific development of Sichuan Province. At present, countries around the world have paid more attentions to the biodiversity. In order to understand and study the biodiversity, the first thing of all is to know the species diversity. The compiling of Sichuan Flora namely is studying of species diversity in Sichuan Province. Its scientific significance is gone without saying. It possesses very important scientific guidance effect for exploitation and utilization of plant resources. Because Sichuan locates in the inland of China, its economy development must adequately take advantage of predominance of nature resource, especially the plant resources. The plant species are very abundant, and the types of plant are very complete in Sichuan. Some species, such as *Acanthochlamys bracteata*, *Metasequoia glyptostroboides*, *Cathaya argyrophylla* and *Davidia involucrata*, are honored by living fossil, and are famously rare and precious plant species in the world. The solution for some important scientific and theoretical issues, such as the origin of angiosperm and some questions associated with plant geography, may rely on the studies of plant species in Sichuan and its adjacent regions. It is particularly significant in theory to study the plant species in Sichuan.

Sichuan Flora consists of moss, fern, gymnosperm and angiosperm. The arrangement of moss is based on the Brotherus's system (1924-1925) and refers to recently related systems in the world. The arrangement of fern is based on the Ching Renchang's system (1978). The arrangement of gymnosperm is based on the Cheng Wanchun's system (1961). The arrangement of angiosperm is based on the Syllabus der Pflanzenfamilien II (Engler, 1964). The sequences are followed the family number, but the publication time is not always matched with the order. The morphological characters, geographical distribution, ecological environment, scientific significance, main uses of the family, genus and species in this Flora

are systematically and detailedly described. In the interest of the convenience for readers to use this Flora for identifying plant species, the key to genus and species are listed in the book, and many plates accounting for 60% of the species are attached. Sichuan Flora is compiled according to the specification draw by the editorial board. The pictures and text in the books are good and complete. The growing areas of each species are itemized to county. Furthermore, the growing environment, habits and altitude of the species are recorded in the Flora. This is very convenient for reader to make on-the-spot investigation. The concrete use of the species with important economical value is also listed in the book in favor of exploitation and utilization. The universal Chinese names of the taxon are used in the book, and sometimes, the nicknames are also listed. It is helpful to clarify the long-standing confusion in the nomenclature. The classification of plant in this book is strictly according to the request of International Code of Botanical Nomenclature, facilitating international communication. Sichuan Flora is a monograph that will be handed to many following generations. In order to ensure the compiling quality, we especially pay much more attentions to the textual research of literatures, identification of plant specimens, the classification of species, and etc.

Since Sichuan Flora was published at 1981, more than thirty years has passed. The work of the compilation of Sichuan Flora is very hard. Now, seventeenth volumes of Sichuan Flora have been published, but the tasks in the future are still very arduous. The collective efforts of botanists inside and outside Sichuan Province are needed to finish this magnum opus.

Chongqing was set up as municipality directly under the central government at 1997. Many changes have taken place in the governmental region of former Sichuan Province. Chongqing and its jurisdictions are already not parts of Sichuan Province. However, the region still is regarded as that of former Sichuan Province in order to retain the continuity, oneness and integrality of Sichuan Flora.

In the process of compiling Sichuan Flora, we have received many kind suggestions, considerations and helps from the colleagues in the associated universities and institutes. We are deeply grateful to them. Due to our limited knowledge, there are many unavoidable defects and mistakes in this flora. We are looking forward to receiving criticism upon this book for its oversight errors. Thank you.

Editorial Board of Flora Sichuanica

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