

# 中国高等植物 彩色图鉴

Higher Plants of China  
in Colour

《中国高等植物彩色图鉴》编委会 主编

Edited by  
Editorial Committee of  
Higher Plants of China in Colour

第4卷 被子植物  
Volume IV Angiosperms

罂粟科 - 毒鼠子科  
Papaveraceae -  
Dichapetalaceae

卷编辑 于胜祥  
Edited by Shengxiang YU



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科学出版社  
北京

## 内 容 简 介

本套图鉴精选中国境内野生高等植物和重要栽培植物1万余种，配以图片近2万张，每一物种以中英文形式简要介绍植物的中文名、拉丁学名、形态特征、花果期、生境和分布。图鉴共分为9卷，收录苔藓植物100科、蕨类植物40科、裸子植物11科、被子植物232科，共计383科，且除苔藓植物之外，已收全所有科。本套图鉴是继《中国高等植物图鉴》、《中国植物志》、*Flora of China*之后，又一部大型植物分类学巨著。本卷为第4卷。

本书适合植物学领域的科研人员、管理人员及爱好植物学的普通大众阅读和收藏。

This set of pictorial books contains nearly 20 thousand photographs, presenting the cream of wild higher plants and important cultivated plants in China, the species of which number more than 10 thousand. Each of the species is concisely introduced in both Chinese and English from such aspects as Chinese name, Latin name, morphological features, flowering and fruiting season, habitat and distribution. Divided into nine volumes, this work includes 100 bryophyte families, 40 pteridophyte families, 11 gymnosperm families and 232 angiosperm families, 383 families altogether; the inclusion of all the said families is complete except for the bryophytes. The set of pictorial books is another monumental work on plant taxonomy, after *Iconographia Cormophytorum Sinicorum*, *Flora Reipublicae Popularis Sinicae*, and *Flora of China*. This is volume IV of the series.

This work is intended for scientific researchers and administrators in the field of botany and also for botany enthusiasts. As well as for reading, the work can be a classic collection.

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# 丛书前言

中国是世界上植物最丰富的国家之一，已知有三万五千多种野生和重要栽培的高等植物，其中特有种达一万五千多种，形成复杂而独具特色的植物区系。中国的先人们创造了古老而辉煌的农业文明，选育出水稻、大豆、茶、枣、桃、柿等重要作物，其中水稻的栽培历史可追溯到约七千年前新石器时期的河姆渡文化，如今稻米已成为世界上近一半人口的粮食。丰富的植物资源和灿烂的历史文化，使中国成为“花园之母”和世界农作物七大起源中心之一。

中国植物学家为了系统地展示中国植物的多样性，历经艰辛，相继编研了《中国高等植物图鉴》和《中国植物志》，并与外国专家合作出版Flora of China等大型志书，这些著作在国内外应用广泛、影响巨大，客观地展现了不同时期的植物分类学研究和植物资源调查的成果，成为植物分类学领域最重要的大型经典著作。但是，它们都有一个共同的缺憾，即仅有黑白线条图，难以充分表达植物各器官的质地和颜色等自然状态下的外貌特征，其效果难以满足部分读者鉴赏植物的需要。

大多数发达国家都有自己的植物彩色图鉴，这些图鉴不仅展示了本国的生物多样性，还兼备工具书功能和富有感染力的艺术效果，具有很高的应用和收藏价值。迄今为止，国内出版的植物彩色图书多为地区性的，或局限于某一类植物的，如观赏植物、栽培作物和药用植物。作为世界生物多样性大国，中国应当拥有一套全面体现本国野生植物多样性的的大型鉴赏类彩色图册。

将灿烂的瞬间变为永恒是广大植物爱好者和摄影爱好者的追求。为了填补上述空白，台湾吴声华研究员策划并启动了这项工作。在海峡两岸学者的共同努力下，本书的规模在不断扩大，从最初的云南植物写真集扩展到全国性大型彩色植物图鉴。中国科学院植物研究所王文采院士出任丛书编委会主任，吴声华研究员和中国科学院植物研究所李振宇研究员任副主任。编委会遴选国内从事植物分类学研究的专家担任各卷卷编辑，邀请中国大陆、台湾和香港近200位植物学家承担各科的编写和审稿工作，卷编辑在专家审稿的基础上，再次对本卷内容进行核查。近400位摄影作

者提供了大量精美的植物彩色照片。丛书还采用了著名的动植物科学画大师曾孝濂先生绘制的20余幅优雅而灵动的彩色图片。

本丛书划分为九卷，共收录中国高等植物1万余种，种类以野生植物为主，同时收载重要的栽培植物，精选图片近2万张。本丛书中科的系统排列如下：苔藓植物主要参考《中国苔藓志》中的系统；蕨类植物按张宪春2015年在《石松类和蕨类名词及名称》提出的系统；裸子植物和被子植物的系统排列按第尔斯(L. Diels, 1936)于A. Engler's Syllabus der Pflanzenfamilien中采用的系统。仅第三卷将毛茛科分为星叶草科、毛茛科和芍药科，将木兰科分为木兰科、八角科、五味子科和水青树科。全书收载中国高等植物383科，其中苔藓植物100科，占全国苔藓科总数的大多数；其余是蕨类植物40科，裸子植物11科，被子植物232科，分别代表了国产三大门类所有的科。本丛书收载的植物中有一些是Flora of China出版后发表的国产新种，如香港鹅耳枥(*Carpinus insularis*)、球柱楼梯草(*Elatostema globosostigmatum*)和西藏小囊兰(*Micropera tibetica*)，以及中国分布新记录，如轮叶三棱栎(*Trigonobalanus verticillata*)和格力兜兰(*Paphiopedilum gratixianum*)。

为了方便更多的读者阅读，本丛书的文字采用中英文，简要介绍各种植物的中文名、拉丁学名、形态特征、花果期、生境和分布。

本书在编写过程中，承中国科学院植物研究所中国植物图像库和中国自然标本馆提供了许多方便和帮助，在此向他们表示衷心的感谢。

感谢国家出版基金和科学出版社对本丛书出版的大力支持。

由于编著者的业务水平有限、错漏之处，欢迎批评指正。

《中国高等植物彩色图鉴》编委会

2015年10月31日

## Preface to the Series

As one of the countries with the richest diversity of plant species in the world, China has more than 35 000 known species of wild and important cultivated higher plants, among which there are over 15 000 endemic species, forming a complex and unique flora. The ancestors of the Chinese people created an ancient and splendid agricultural civilization. They selected and cultivated significant crops like rice, soya bean, tea, jujube, peach, and persimmon. Among these crops, the cultivation history of rice can be traced back to the Hemudu culture of the Neolithic Period around 7000 years ago. Nowadays, rice has become the staple food for nearly half of the world's population. With abundant plant resources and a long history and great culture, China is renowned as 'the mother of gardens' and is one of the seven important centers of origin for crops in the world.

In order to present the diversity of China's plants systematically, botanists from China have made pain-taking efforts to compile a series of large-volume floras including *Iconographia Cormophytorum Sinicorum*, *Flora Reipublicae Popularis Sinicae* (Chinese version) by themselves, and *Flora of China* (English version) with the collaboration of international specialists. These books are well known both in China and abroad and have been used extensively for studying Chinese plants and plants from adjacent areas, these works present the results of plant taxonomic study and study of plant resources in China at different periods, and constitute some of the most important large classic volumes in the field of plant taxonomy. However, in all these works the plants are only partly illustrated by black and white line-drawings, unable to present the texture and colour of flowers and leaves fully in their natural state, and they hardly reveal the spectacular beauty and fascination of the wealth of plant species.

Most developed countries have colour pictorial books of their plants, which form greatly desirable works, because they are not only a presentation of the plant diversity of the countries, but are also an attractive record of the beauty of the nature. So far, most of the Chinese colour pictorial books of plants are regional treatments, or concentrate on particular groups, such as ornamental plants, cultivated crops and medicinal plants or certain taxonomic groups. As a country with a high level of biodiversity, China merits a large-scale colour pictorial book with high appreciation value featuring the wild plants that occur within its territory.

It is the goal of every lover of plants and plant photography to capture the essence of plant beauty and make it permanent. In order to fill the

above-mentioned gap, Professor Shenghua WU from Taiwan, planned and launched the present project. With the joint effort of specialists from all over China, the scale of the book has expanded from the initial pictorial book of plants of Yunnan to a many-volume colour pictorial book of plants of the whole country. Academician Wentsai WANG of the Institute of Botany, Chinese Academy of Sciences, took up the post of the chairman of the editorial committee, and the positions of vice chairmen of the editorial committee were assumed by Prof. Shenghua WU, Taiwan, and Prof. Zhenyu LI of the Institute of Botany, Chinese Academy of Sciences. The editorial committee then selected experienced plant taxonomists as volume editors for each volume, and invited nearly 200 botanists from mainland China, Taiwan and Hong Kong to undertake the compilation and reviewing work for each plant family by volumes. Nearly 400 photographers provided numerous beautiful full colour plant photos. The well known zoological and botanical artist, Xiaolian ZENG, kindly allowed the use of more than twenty of his elegant and vivid plant portraits in this series.

This whole work is divided into nine volumes, depicting more than 10 thousand species of higher plants from China, dealing mainly with wild plants, but also including some important cultivated plants, and has involved the careful selection of nearly 20 thousand photographs. The system arrangement for plant families are as follows: bryophytes are mainly arranged according to the system used in *Flora Bryophytorum Sinicorum*; pteridophytes are arranged according to the system proposed by Professor Xianchun ZHANG in *A Glossary of Terms and Names of Lycopods and Ferns* (2015); gymnosperms and angiosperms are arranged according to the system used in *A. Engler's Syllabus der Pflanzenfamilien* (L. Diels, 1936), with the difference that in Volume III, Ranunculaceae is divided into Circaeasteraceae, Ranunculaceae, and Paeoniaceae, and Magnoliaceae is divided into Magnoliaceae, Illiciaceae, Schisandraceae, and Tetracentraceae. The higher plants of China included in this work comprise 383 families; with 100 families of bryophytes, which represent the majority of the bryophyte families in China; the others are 40 pteridophyte families, 11 gymnosperm families and 232 angiosperm families, which represent all the families distributed in China respectively. The work includes some new additions of species published since *Flora of China*, such as *Carpinus insularis*, *Elatostema globosostigmatum*, *Micropera tibetica*, and new distribution records for China, such as *Trigonobalanus verticillata* and *Paphiopedilum gratixianum*.

To facilitate and attract readers from both China and abroad, the text of this book series is bilingual in Chinese and English, providing the Chinese name, Latin name, morphological features, flowering and fruiting season, habitat and distribution.

In the process of compiling this work, Plant Photo Bank of China (PPBC) and Chinese Field Herbarium, both of which are under the Institute of Botany of Chinese Academy of Sciences, provided great help with the selection of photographs, for which we express our gratitude.

We also thank National Publication Foundation and Science Press, Beijing, for their great support for the publication of this book series.

It will be appreciated if mistakes and omissions are brought to our attention.

Editorial Committee of *Higher Plants of China in Colour*  
31 October, 2015

## 关于本图鉴

1995年夏天，我参加由中国科学院昆明植物研究所臧穆教授带领的云南野外工作，同行的还有国际真菌学会理事长德籍的Franz Oberwinkler教授与法国的学者。臧教授爽朗好客，外国人都喜欢他的热情。那年去丽江，再去南部的西双版纳。西双版纳热带植物园的陶国达先生带领我们的野外工作，他是当地植物鉴定首席专家，知道好的树林在何处。一天，在傣族传统农家的木架房子吃中饭。臧教授建议陶先生既然喜欢摄影，何不出一本版纳植物图鉴，问我能不能帮忙在台湾找出版。我答应回去问问。

先问自然科学博物馆的李家维馆长，他对植物研究及保育充满热诚，对这项工作有兴趣。但未久他感觉这项工作所需时间过久，博物馆经费也不足以出版。我又问其他出版公司，没有得到响应。我想应该先有成果再问出版吧，就请陶先生持续植物拍摄。臧教授和夫人黎兴江教授推荐了费勇帮忙这项工作。1997年夏天，我在昆明机场与臧教授和费勇会合，一同飞去版纳。费勇年纪与我相当，长得瘦黑，话不太多。陶先生带领我们野外工作。回程时费勇说他想找几个同事一起负责滇西北的植物拍摄工作，与陶先生滇南的工作结合成为云南植物图鉴。回台后看陶先生给我的幻灯片，感觉质量不是太好，问他才知道所用的相机是正牌，镜头却是小厂牌。我汇钱请他购买一套相机，以利拍摄质量。

1998年，我到昆明植物所，和陶国达、费勇及孙航，讨论植物图鉴工作。费勇对此工作充满兴趣，人缘也好，决定由他征集昆明植物所人员拍摄的植物照片，并且中、英文字也由他撰写。翌年臧穆夫妇介绍昆明植物所的著名画家曾孝濂先生。曾先生长期考察云南山野的植物与动物，画作结合了科学性与艺术美感，是中国写实花鸟画得最好的。

2000年，费勇在日本富山县中央植物园半年，其间拍摄植物园栽培的中国植物。那年秋天费勇带我去大理点苍山和楚雄紫溪山。一天，我们在大理古城一间白族旧庭院吃风味晚餐，他兴致好，畅所欲言。费勇起初给我的印象是有些木讷，几次往来后就把我当熟人。几次的讨论，感觉他满心想做好这件事，并不在意条件。大理巷弄中有摊贩卖当地特产乳扇，他说闺女爱吃，买了两大张带走。

2001年年初一个早上，臧教授发来邮件，通知我费勇前一日在丽江不幸去世。一个年轻健康生命的突然离去，令人难以承受。出席完上午的会议后即打电话到昆明。黎教授说费勇到丽江出差，半夜室友听到声响，见他口吐白沫急送医院。地方医院初以为是癫痫，到清晨就不治了。

几个月后我有事联络曾孝濂先生，他告诉我费勇太太想与我

联系。费勇太太姓向，我们称小向。她电话中希望植物图鉴工作能够继续，而且费勇的几个同事愿意帮忙。当年夏天在昆明的一个晚上，小向同昆明植物所的成晓、孙航、周浙昆一起和我见面，商讨后续的工作。成晓说他与费勇是同学，同时毕业，同时上班，他一定会帮忙。他确实尽力后续工作的联系与推动。2002年在昆明，几个朋友见面，小向带初中的女儿同来。女儿乖巧懂事，我说长得像费勇，她眼眶微微红了。成晓研究蕨类，他的岳父武素功先生及岳母方瑞征女士也是昆明植物所学者，两位在图片提供及文稿修订均提供协助。昆明植物所李锡文教授对植物分类的造诣比较全面，负责图片和文稿审查。昆明植物所还有多位专家对本书工作做出贡献，不在此逐一罗列。

2001年，曾孝濂先生介绍昆明植物所的画家刘怡涛先生。刘先生在版纳热带植物园待过，建立独特的版纳风光绘画风格，也喜好摄影，带过我几次野外工作。他建议我把植物图鉴工作扩大到全中国。艺术家天生具有美感，曾、刘两位画家拍摄的植物图，构图与取景皆有独到之处。2003年我到河北与吉林进行野外工作，2004年到新疆与吉林时决定把植物图鉴范围扩大到全中国。我和小向说明书的分量和质量要到位，才能彰显费勇的努力精神。费勇原本即有中国植物图鉴的梦想，干脆一次到位。

2004年，中国科学院植物研究所覃海宁博士来台，我们是1994年在英国邱园认识的。中国植物图像库在海宁领导下建立得有声有色。海宁总是满脸笑容，热诚谦虚，听我说植物图鉴的事，立即寻思找人帮忙。他人面广，介绍不少人，拍摄较好的有福建的何国生、四川的吴光弟、广西的刘演、广东的李泽贤。刘演的图片色彩饱满令人赞叹。我去爱丁堡皇家植物园时知道David Chamberlain博士是杜鹃花科专家，他同意审查杜鹃花科及小檗科图片。彭镜毅介绍哈佛大学David E. Boufford博士，他的图片是从中国西南的横断山脉植物调查工作所拍摄。David又推荐Susan Kelley及Richard Ree提供植物图片。

中科院植物所吴鹏程教授是苔藓专家，1990年我在芬兰赫尔辛基大学即将取得博士学位时他在赫大待了几个月。吴教授介绍几位中科院植物所的专家帮忙图片审查及文字撰写。台湾真菌学前辈吕理燊博士介绍昆明市农业局副局长惠肇祥先生提供杂草图片，惠先生又介绍北京的车晋滇先生提供华北的杂草图片。台湾赖明洲教授介绍上海自然博物馆的秦祥堃先生提供华东植物图片，又介绍中国科学院沈阳应用生态研究所的赵大昌先生提供长白山植物图片。我2004年到乌鲁木齐开会，组织会议的新疆大学阿不都拉教授拍了不少新疆植物图片，也提供给我。

大学同学康世昌是植物及计算机高手，拍摄的植物图片也提

供给我。他早预想到网络世界的影响力，不推荐大部头实体书的出版构想。多年前他写个网址要我去看，那是我不知道的“Google”，可以查询信息。网络上图片的数量越来越多，趋势是如此。我在芬兰的指导教授Tuomo Niemelä出版过大型真菌的小书，亲自编排，图片与文字搭配得美感十足，我每翻阅总是心情愉悦。我向Tuomo请教对这套植物实体书的意见。他说网络的数据有时会消失，且许多没经过审查。我想这套书终要完成，无法顾及趋势与新时代人类的想法。

2007年年初，我在网络发现中科院植物所的中国植物图像库有影像部分。负责的是李敏，我问他图片提供者，他推荐几位拍摄较好的。多数是中科院植物所的年轻人，有刘冰、林秦文、于胜祥、李敏、高贤明、邴艳红，还有陕西的王耘。我当时已收集中国植物5000种的图片，工作超过10年理应收尾。然不加入这批有许多北方植物的图片实在不舍。刘冰是植物分类奇葩，这么年轻就拍到数量惊人的植物图片。刘冰和刘怡涛是给这项工作提供图片最多的两位。刘博帮忙不少文字撰写及图片审查，工作积极。当年年底，图片收集到6500种以上，接着准备文字、图片审查等出书的各项工作。

2010年在台湾“中央研究院”召开一项研讨会，覃海宁和李敏也来了，他们的报告显示中国植物图像库已收到数十万张图片。我如果再搜寻一次图片，能收到更好及更多的图片，但面对许多人期盼这套书问世，时间的延长，压力更大。终究，我相信费勇会支持这最后一批图片的征求。湖南喻勋林及张代贵两位教授寄来许多华中植物图片，浙江张宏伟先生及安徽施忠辉先生也送来图片。吉林通化的周繇教授寄来他辛苦拍摄的长白山植物图片。近三年送来较多图片的还有朱鑫鑫、陈又生、徐晔春、陈彬、陈世品、何海、周喜乐，以及蕨类的张宪春和兰科的金效华。好友张力负责苔藓部分。

“中央研究院”彭镜毅博士提供了许多秋海棠科图片，也修订这科的文稿。牟善杰是台湾的蕨类学家，提供一些蕨类图片给

本书，也审查过蕨类图片及文字。我在台湾大学念博士时，善杰是大学生，见他圆圆的笑脸，成天在标本馆研究。2010年11月，44岁的他突然中风走了，令人感慨！吕碧凤小姐是台湾优秀的业余蕨类专家，提供一些好的蕨类图片。还要感谢提供及审查图片的几位同事：王秋美、陈志雄、胡维新、黄俊霖、严新富和邱少婷。

早期收到的是幻灯片及少数印好的照片，2005年以后送来的是数码影像。数码图片干净，缺点是饱和度、清晰度和锐利度表现稍差，绿色部分有时偏黄。图效调整可改善这些问题。幻灯片的影像则会受到底片、冲洗、保存、扫描等质量的影响，好质量的并不多。图片须裁切出重点部位，再调整影像效果，这些工作大多是我处理。商请到一批人分别撰写文字。虽然有范本给撰写人参考，但各人的写法与仔细程度难免不一，有疏漏或小错误的情形普遍存在。起初我自己参考文献逐一查核，修订了约两千种的文字，但工作量太大，无法继续亲为。文字工作贡献较多的有费勇、刘博、萨仁、谷粹芝、成晓、杜宁、李锡文、徐晓婷和方瑞征等。

吴鹏程教授与科学出版社生物分社社长王静女士提及这项工作，王静有兴趣了解出版的可能，我们2010年在北京见面。自己过于深入这项工作，甚至如排版形式、字形等都亲自研究。像是自己养大的小孩，不放心交给他人处理，而且书稿已经在台湾找设计公司开始排版了。王静有毅力，持续两年逐渐消减我的疑虑。二十年来两岸的社会经济形势改变，使得这套书在大陆出版成为自然。德高望重的王文采院士及植物分类权威李振宇教授鼎力相助、组织动员，国家出版基金给予资助，促使整体工作能顺利完成。

吴声华

2015年10月20日



## About the Pictorial Series

In the summer of 1995, I took part in the Yunnan fieldwork led by Prof. Mu ZANG from Kunming Institute of Botany, Chinese Academy of Sciences. Joining us were German professor Franz Oberwinkler, director general of International Mycological Association, and some French scholars. Prof. ZANG was candid, cordial and hospitable, which impressed everyone, especially the foreign guests. We first went to Lijiang and then Sipsongpanna in the south. During this fieldwork, we were guided by Mr. Guoda TAO from Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences. He was the chief expert of plant identification in the area, knowing which areas of the woods were worth this field inspection of ours. One day, when we were having lunch together in a traditional wooden house of an ethnic Dai family, Prof. ZANG proposed to Mr. TAO: "Since you are so fond of photography, why not compile a pictorial book of Banna's plants?" Prof. ZANG then turned to me, asking whether I could give help in getting the book published in Taiwan, and I promised to give it a try after returning to Taiwan.

I first contacted Dr. Chiawei LI, director of Museum of Natural Science, who was passionate about plant research and conservation and interested in the project. But before long, his passion faded due to his sense that the project was likely to take too long a time, and the Museum did not have sufficient fund to support the publishing. I then inquired of other publishing companies, but none of them gave a positive response. These setbacks sent me thinking that perhaps we should make some tangible achievements first before our work could be accepted for publication. So I asked Mr. TAO to proceed with shooting plants. Prof. ZANG and his wife Prof. Xingjiang LI recommended Yong FEI to provide assistance to the work. In the summer of 1997, I met Prof. ZANG and Yong FEI at Kunming Airport, and we flew to Sipsongpanna together for the fieldwork led by Mr. TAO. Of the same age as mine, Yong FEI was a thin and swarthy man, not very talkative. On our way back, Yong FEI said he was considering asking several of his colleagues to join him in shooting plants of the northwest of Yunnan so that the pictures taken in the two areas (the South Yunnan and the Northwest Yunnan) could be combined to make a single pictorial book that could be called "Plants of Yunnan". After returning to Taiwan, I browsed the slides given by Mr. TAO, feeling that their quality was not ideal. Having asked Mr. TAO about this, I learned that it had been caused by his camera whose main body was of good brand and quality but whose lens was made by a mediocre producer. I remitted money to him for purchasing a new camera set, hoping that the quality of photos could be ensured by a high-quality camera.

In 1998, I visited Kunming Institute of Botany to discuss with Guoda TAO, Yong FEI and Hang SUN about the work of pictorial book for plants. Yong FEI was full of enthusiasm on the work, and had good

relations with people, so we decided to commission him to collect plant photos taken by staff from the Kunming Institute, and to compose text both in English and Chinese. The next year, Prof. Mu ZANG and Prof. LI introduced to me Mr. Xiaolian ZENG, who had been engaging in the investigation of plants and animals in the wilds of Yunnan Province for a long time and was also a famous painter from the Kunming Institute of Botany. His paintings are the best realistic bird-and-flower works in China, blending scientificity with artistic beauty.

In 2000, Yong FEI spent half a year in Botanic Gardens of Toyama (Japan), taking photos of Chinese plants grown in the Gardens. In autumn of the same year, with Yong FEI as my guide, we went to Diancang Mountain in Dali and Zixi Mountain in Chuxiong. One day, when we were having local delicacies for supper in an old courtyard of Bai nationality, Yong FEI got into high spirit and chatted with me without restraint. My first impression of Yong FEI was that he was a bit unapproachable, but after several rounds of conversations, he regarded me as his close friend. After several discussions with him, I felt that he very much concentrated on doing the work well, paying no attention to remuneration. In a lane of Dali, we found a vendor selling milk fan cake, a kind of local specialty, and he bought two big pieces, saying that they were for his daughter who liked such food.

One early morning in the early 2001, Prof. ZANG sent me an email, saying sadly that Yong FEI passed away in Lijiang the day before. It was really unbearable to hear of the sudden passing of such a young life. As soon as the meeting in that morning ended, I called to Kunming. The call was answered by Prof. LI who said that Yong FEI had been on a working trip at the time. At midnight, his roommates were awakened by some noises and found him foaming at the mouth. He was rushed to a local hospital and initially diagnosed as only having a fit of epilepsy, but no amount of treatment took effect on him; he passed away just as dawn came.

Several months later, when contacting Mr. Xiaolian ZENG, I was told that Yong FEI's wife was looking for me. The family name of Yong FEI's wife was XIANG, so we called her Little XIANG, a traditional way of Chinese people addressing their acquaintances who were younger than themselves. Little XIANG expressed her wish over phone that the project of the pictorial book should go on as usual and she also said that several of Yong FEI's colleagues were willing to help. One summer evening of the same year in Kunming, Little XIANG, together with Xiao CHENG, Hang SUN and Zhekun ZHOU all from the Kunming Institute of Botany, had a meeting with me to discuss about the remaining work of the project. Xiao CHENG said he and Yong FEI were classmates, graduating and first getting employed at the same time, so he would definitely offer his help. And in fact he did try his best to facilitate the progress of the work through networking. In 2002, we had a gathering in Kunming. Little

XIANG brought her daughter there, who was then a junior-secondary-school student. The girl was both clever and well-behaved, and when I said to her that she looked like her father, her eyes moistened slightly. Xiao CHENG was a fern researcher. His father-in-law Mr. Sugong WU and mother-in-law Mrs. Ruizheng FANG were also scholars of the Kunming Institute of Botany, both of whom offered their assistance in providing photos and editing texts. Prof. Xiwen LI also from the Kunming Institute of Botany, who had comprehensive attainments in plant taxonomy, was responsible for examining photos and texts. There were many other experts from the Kunming Institute of Botany who made contributions to this book, but due to space constraint, their names are not listed here one by one.

In 2001, Mr. Xiaolian ZENG introduced to me Mr. Yitao LIU, another painter from Kunming Institute of Botany. Mr. LIU used to stay in Xishuangbanna Tropical Botanical Garden, where he developed his distinctive painting style with which to depict typical Sipsongpanna's landscape. He was also a lover of photography, and used to be my fieldwork guide for several times. Mr. LIU suggested that I expand the pictorial plant book project to cover the whole territory of China. Due to the innate aesthetic sense of artist, the plant photos taken by the two painters - Mr. ZENG and Mr. LIU - had unique characteristics both in picture composing and view finding. My fieldwork in Hebei and Jilin in 2003 and then my travelling in Xinjiang and Jilin in 2004 prompted my final decision to expand the pictorial plant book project to the whole country. I explained to Little XIANG that only when the book was comprehensive enough and of high quality, could Yong FEI's hardworking spirit and aspiration in this regard be fully manifested. And only in this way could Yong FEI's cherished dream of compiling a pictorial book on plants of China be realized without unnecessary pre-steps.

2004 saw Dr. Haining QIN's visit to Taiwan. Dr. QIN was from Institute of Botany, Chinese Academy of Sciences, and we got to know each other at British Kew Gardens in 1994. Under the leadership of Haining, the construction of Plant Photo Bank of China was making marvelous progress. Haining was a cordial and modest man, with his face always shining with smile. Upon knowing that I was conducting the project of pictorial plant book, he offered to give help. Taking advantage of his wide network, he brought in many talents, among whom Guosheng HE from Fujian, Guangdi WU from Sichuan, Yan LIU from Guangxi, and Zexian LI from Guangdong were all good at photography. In terms of color, Yan LIU's photos were particularly good, which was admirable. In addition, Dr. David Chamberlain, an expert in Ericaceae, whom I got to know when I visited Royal Botanic Garden Edinburgh, agreed to review the photos of Ericaceae and Berberidaceae. Besides, Dr. Ching-I PENG introduced Dr. David E. Boufford from Harvard University who provided photos taken when he was investigating the plants of

the Hengduan Mountains in the southwest of China. And David also recommended Susan Kelley and Richard Ree who both offered their plant photos.

Prof. Pengcheng WU from Institute of Botany, Chinese Academy of Sciences, was an expert in bryophytes. In 1990, he stayed in University of Helsinki, Finland for a few months when I was about to obtain my doctorate awarded by the University. Prof. WU introduced several experts from Institute of Botany to help review photos and write text. Dr. Liisin LEU, a Taiwan veteran in mycology, recommended Mr. Zhaoxiang HUI, deputy director of Kunming Municipal Bureau of Agriculture, to provide photos of weeds. And Mr. HUI invited Mr. Jindian CHE from Beijing to provide photos of weeds in Northern China. Prof. Mingjou LAI from Taiwan involved Mr. Xiangkun QIN from Shanghai Natural History Museum in contributing photos of plants in Eastern China, and then recommended Mr. Dachang ZHAO from Shenyang Institute of Applied Ecology, Chinese Academy of Sciences to offer photos of plants in Changbai Mountains. In 2004, I went to Urumqi to attend a conference whose organizer, Prof. Abdulla from Xinjiang University, gave me many photos of Xinjiang plants taken by himself.

My college classmate Shihchang KANG, an expert in plants and computer, also sent me plant photos taken by himself. Having long foreseen the power of internet, he did not quite agree with the idea of publishing a bulky physical book. Years ago, he wrote down a website address and asked me to visit it. The website, which I had never heard of before, was 'Google', a 'search engine' enabling us to search for information easily. And it turned out that this became a strong upward trend, with more and more photos being uploaded onto internet for people to view or download. However, Prof. Tuomo Niemelä, my Finnish adviser, had a different view on this phenomenon. He had published a handbook about large fungi, whose formatting was done by himself. The photos and text were arranged so well that a full sense of beauty permeated the entire book, and this always made me in a good mood each time I read it. When being consulted about the idea of publishing a physical plant book like this one, he encouraged me to continue doing so, saying that sometimes online data and materials would vanish for no reason and many online materials could not be said to be authentic because they had not undergone necessary review and approval. With this encouragement, I decided to carry out this project through to the end, paying no attention to the trends and fashionable ideas of new generations.

At the beginning of 2007, I found on internet that the Plant Photo Bank of China owned by Institute of Botany contained image data being managed by Min LI. So I asked him for sources of these photos.

Min LI recommended several persons whose photos in the Database were regarded as excellent. Most of these photo-takers were young people from the Institute of Botany. They were Bing LIU, Qinwen LIN, Shengxiang YU, Min LI, Xianming GAO, Yanhong BING. Besides, Yun WANG from Shaanxi was also added to the list of recommendation. By that time, I had already collected photos of 5000 species of plants in China through over 10 years of my hardwork which could have very well wound up. However, it would have been regrettable if I had not added so many fine photos of plants in Northern China to this important book. Bing LIU was a wonder in plant taxonomy - so young as he was, he had taken astonishingly large number of plant photos. It was Bing LIU and Yitao LIU who provided the largest number of photos for this work. Bo LIU, who was very active in work, helped a lot in writing text and reviewing photos. By the end of the same year, we had collected photos of more than 6500 species, paving the way for doing other publication-related preparatory work such as text writing and photo reviewing.

In 2010, "Academia Sinica" held a seminar in Taiwan, at which Haining QIN and Min LI delivered their reports which revealed that the Plant Photo Bank of China had collected hundreds of thousands of photos. In this circumstance, one more round of photo searching and collecting would certainly make more and better photos available for this upcoming book. Only, it would take more time. With so many people looking forward to the publication of the book, the longer time we took in publishing, the heavier pressure we would face. But in final analysis, I believed that Yong FEI, if he were still alive, would support this last round of photo searching and collecting. Prof. Xunlin YU and Prof. Daigui ZHANG from Hunan sent me many photos of plants of Central China. Mr. Hongwei ZHANG from Zhejiang and Mr. Zhonghui SHI from Anhui also sent photos to me. Prof. You ZHOU from Tonghua of Jilin contributed the photos of plants of Changbai Mountain that he took with great efforts. In the recent three years, a lot of photos were also provided by Xinxin ZHU, Yousheng CHEN, Yechun XU, Bin CHEN, Shipin CHEN, Hai HE, and Xile ZHOU. Xianchun ZHANG offered many photos of ferns. Xiaohua JIN submitted many photos of Orchidaceae plants. My good friend Li ZHANG was responsible for bryophytes.

Dr. Ching-I PENG from "Academia Sinica" provided a lot of pictures of Begoniaceae and edited the draft for this family. Shannjye MOORE, an expert of ferns from Taiwan, contributed some pictures of ferns to this book, and reviewed the pictures and text for the fern part. When I studied for doctorate in Taiwan University, Shannjye was still an undergraduate of the University. With a lovely round face often with smile, he was always seen studying in herbarium. In November 2010, however, he suddenly died of a stroke at the age of 44, making us very sad and regretful. Miss Pifong LU, an excellent amateur expert of ferns

from Taiwan, contributed some good pictures of ferns. I also would like to express my thanks to the following colleagues who provided and reviewed pictures for me: Chiumei WANG, Chihhsiung CHEN, Weihsin HU, Chunlin HUANG, Hsinfu YEN and Shauting CHIU.

What we received in earlier stages were slides and a small number of prints, and after 2005, all contributions were in the form of digital image. Digital photos are clean, but their saturation, definition and sharpness are not very ideal, with green parts tending to turn slightly yellowish. Fortunately, these problems could be solved through photo-effect modification. As to the slides, high-quality ones were not many, as the quality of such images hinged on such factors as: quality of the film, developing process, storage condition and scanning, etc. The photos first needed some trimming so as to highlight their essential parts and then required modification to the image effect; most of the work was done by myself. In the meantime, we engaged a group of people to do text writing. Although templates were provided to text writers, inconsistency still appeared in some places due to different writing styles of different writers. There were also not a few oversights or slips caused by some writers who were not conscientious enough. At first, I myself did the correction and revision one by one against reference literature, finishing the work on about two thousand species, but as the amount of this kind of work was so big that I could not continue to do it all by myself. Here, I would like to list those who made greater contributions to the text. They are: Yong FEI, Bo LIU, Ren SA, Cuizhi GU, Xiao CHENG, Ning DU, Xiwen LI, Xiaoting XU and Ruizheng FANG, etc.

Prof. Pengcheng WU mentioned this work to Ms. Jing WANG, director of Biological Division of Science Press, who was interested in exploring the possibility of publishing the work, so we met each other in Beijing in 2010. Before this, I had devoted myself to the work so deeply that even small details like typesetting and font were studied and arranged by myself. Therefore, the work was like a child brought up by myself, so I would feel uneasy if I put it in the care of someone else, and moreover, we had already commissioned a design company in Taiwan to start typesetting the draft. However, my concern and worry were gradually dispelled by Jing WANG's sincerity and her perseverance in persuasion and explanation over two successive years. And the changes in social and economic situations across the Straits also made it natural for the book to be published in the Mainland. Also worthy of mentioning are: the generous support, organization and mobilization given or conducted by both Wentsai WANG, a renowned academician and Prof. Zhenyu LI, an expert on plant taxonomy, as well as the funding by National Publication Foundation. All this facilitated the smooth completion of the entire work.

Shenghua WU  
20 October, 2015

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A large bush of pink flowers, likely a species of Papaveraceae, dominates the foreground and middle ground. The flowers are numerous, small, and have a vibrant pink color with yellow centers. The bush is set against a backdrop of a rocky, mountainous landscape with sparse vegetation and a clear sky. The overall scene is a natural, outdoor setting.

第4卷  
Volume IV

被子植物

罂粟科—毒鼠子科

Angiosperms

Papaveraceae—Dichapetalaceae

# 罂粟科 Papaveraceae

卵形至椭圆形。花黄色；萼片先端距状。蒴果长圆形至阔椭圆形。花果期3-10月。生海拔850-1200米的田间或河边。产云南、广东、台湾和福建。原产中美洲和南美洲；栽培于全世界大部分地区。

## 蓟罂粟

*Argemone mexicana* L.

一年生或偶为多年生短命草本，植株被刺。基生叶密；叶覆白粉，脉上具蓝绿色斑块，下面灰绿色，阔倒披针形或倒

Herbs annual or occasionally short-lived perennial, with spines. Basal leaves dense; leaves glaucous with blue-green markings on veins, paler abaxially, broadly oblanceolate or obovate to elliptic. Flowers yellow; sepal apex



椭果绿绒蒿 *Meconopsis chelidoniifolia*



蓟罂粟 *Argemone mexicana*

spurred. Capsules oblong to broadly ellipsoid. Fl. and fr. Mar-Oct. Fields or by rivers at 850-1200 m. Distributed in Yunnan, Guangdong, Taiwan and Fujian. Native to Central and South America; cultivated worldwide.

sides or roadsides at 1400-2700 m. Distributed in W to N Sichuan, and N Yunnan.

## 锥花绿绒蒿

*Meconopsis paniculata* (D. Don) Prain

一年生草本。基生叶常绿密集，莲座状丛生；叶形多变，常近基部羽状全裂，近顶端羽状浅裂。花序下部圆锥状，上部总状；花大而美丽，蓝色、紫色、红色或黄色；萼片2；花瓣4(5-10)；雄蕊多数；子房球形，被金色须状绒毛。花果期6-8月。生海拔3000-4400米草坡、路边或灌丛。产云南西北部至西部和四川西部。缅甸北部亦有。

## 椭果绿绒蒿

*Meconopsis chelidoniifolia* Bur. et Franch.

多年生草本，高50-150厘米。茎直立，具分枝。基生叶和下部茎生叶卵状长圆形或宽卵形，长7-8厘米，宽6.5-7厘米，羽状分裂，裂片3-5；上部茎生叶宽卵形羽状3全裂或3深裂。聚伞状圆锥花序；花瓣黄色。蒴果椭圆形，长1-1.5厘米，无毛，自顶端向下微裂。花期5-8月。生海拔1400-2700米的林下阴处或溪边路旁。产四川西部至北部和云南北部。

Herbs, monocarpic. Basal leaves in a dense evergreen rosette; leaves variously shaped, usually near base pinnatisect, near apex pinatifid. Inflorescences paniculate below, racemose above; flowers large and pretty, blue, purple, red or yellow; sepals 2; petals 4(5-10); stamens many; ovary globose, golden barbellate-tomentose. Fl. and fr. Jun-Aug. Grassy slopes, roadsides or shrublands at 3000-4400 m. Distributed in NW to W Yunnan, and W Sichuan. Also in N Myanmar.

Perennial herbs, 50-150 cm tall. Stems erect, branched. Basal and lower cauline leaves: ovate-oblong or broadly ovate, 7-8 × 6.5-7 cm, runcinatus, lobes 3-5; upper cauline leaves broadly ovate, 3-pinnatisect or 3-pinnatipartite. Cymose panicles; petals yellow. Capsule elliptic, 1-1.5 cm long, glabrous, valvate for a short distance from apex. Fl. May-Aug. Shade of forest understories, creek



锥花绿绒蒿 *Meconopsis paniculata*

### 尼泊尔绿绒蒿

*Meconopsis wilsonii* Grey-Wils

一次性结果草本，高70-150厘米。茎直立。叶密集莲座状；基生叶披针形至披针状椭圆形，羽状全裂至近全缘。总状圆锥花序；花瓣紫色至酒红色；花丝与花瓣同色；柱头紫色；花

柱宿存。蒴果卵形至椭圆形，长14-20毫米，通常5瓣裂。花期6-9月。生海拔2700-4000米的森林和灌丛的边缘、多石地带、草地或悬崖。产四川和云南。缅甸北部亦有。

Monocarpic herbs, 70-150 cm tall. Stem erect. Leaves densely rosette;



places, cliffs at 2700-4000 m. Distributed in Sichuan and Yunnan. Also in N Myanmar.

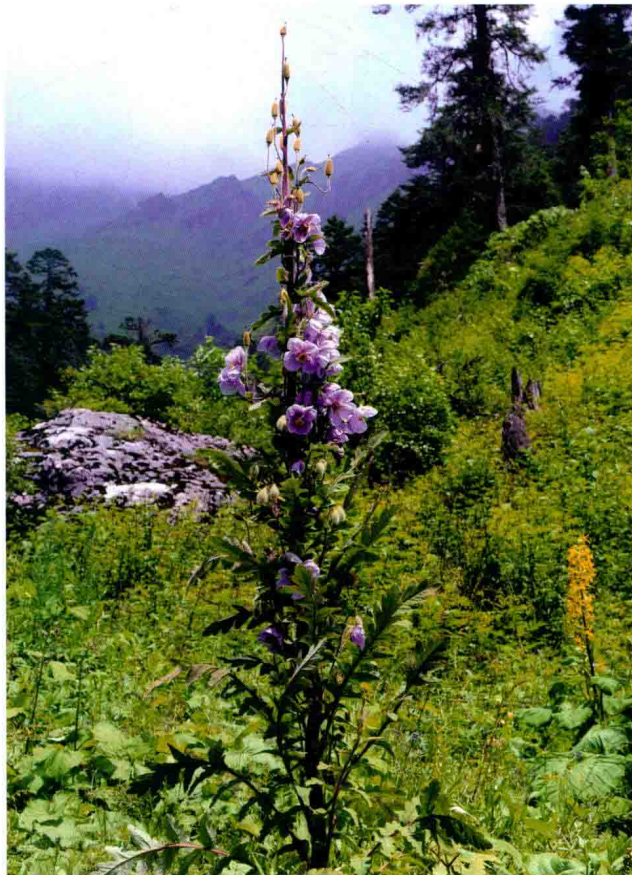
### 贡山绿绒蒿

*Meconopsis smithiana* (Hand.-Mazz.) Tayl. ex Hand.-Mazz.

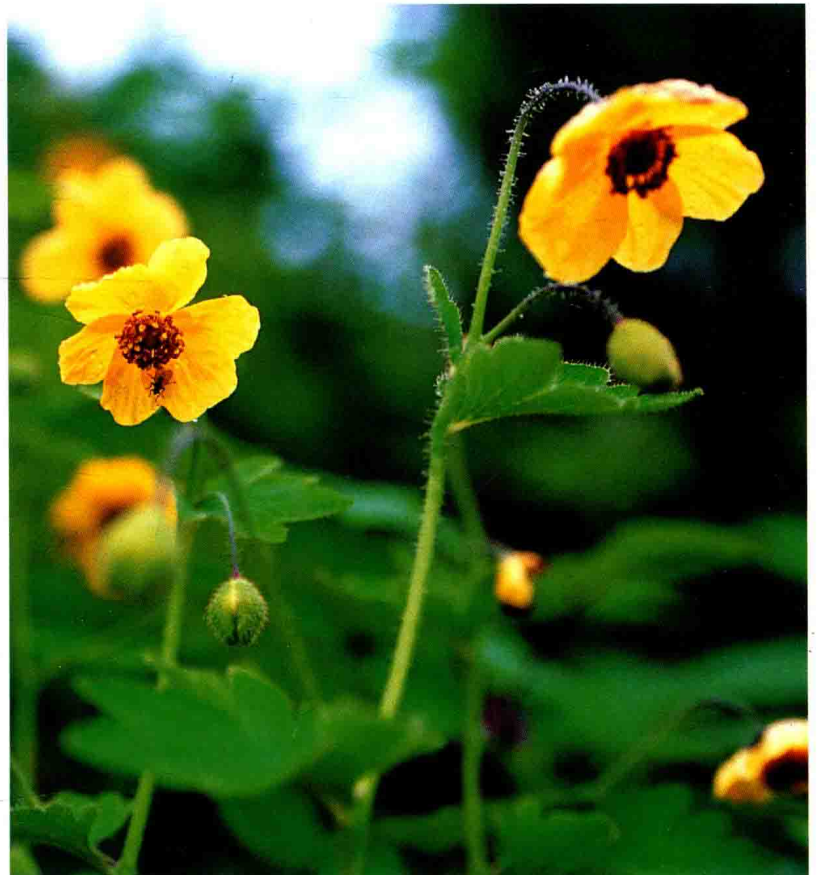
多年生草本。茎生叶疏离，最下部叶具柄；叶羽状3小叶。约4花成总状花序；萼片被毛；花瓣4，黄色；子房近球形；柱头5裂。蒴果密被褐色长硬毛。花果期6-8月。生海拔3100-3400米的潮湿林中、林缘或山坡湿草地。产云南西北部。缅甸东北部亦有。

basal leaves lanceolate to lanceolate-elliptic, pinnatisect to subentire. Panicles racemose; petals purple to wine-red; filaments same color as petals; stigmas purple; style persistent. Capsule ovoid to ellipsoid, 14-20 mm long, generally 5-valved. Fl. Jun-Sep. Forest and scrub margins, stony places, grassy

Herbs perennial. Cauline leaves distant, lowermost petiolate; leaves pinnately 3-foliolate. Flowers ca. 4 in racemes; sepals pilose; petals 4, yellow; ovary globose; stigmas 5-lobed. Capsules densely brown villous. Fl. and fr. Jun-Aug. Wet forests, forest edges or wet grasslands on slopes at 3100-3400 m. Distributed in NW Yunnan. Also in NE Myanmar.



尼泊尔绿绒蒿 *Meconopsis wilsonii*



贡山绿绒蒿 *Meconopsis smithiana*

全缘叶绿绒蒿 *Meconopsis integrifolia***全缘叶绿绒蒿*****Meconopsis integrifolia***

(Maxim.) Franch.

一年生草本。基生叶莲座状，早落，其间混生鳞片状叶；叶全缘。花常3-5；花瓣6-8，黄色或稀白色。蒴果阔椭圆形或长圆形至椭圆形，被金色或褐色柔毛，4-7瓣裂。花期5-8月，果期7-11月。生海拔2700-5100米的灌丛或草地。产云南、四川、西藏、甘肃和青海。缅甸东北部亦有。

Herbs, monocarpic. Basal leaves in a deciduous rosette, among often mixed scalelike leaves; leaves margin entire. Flowers usually 3-5; petals 6-8, yellow or rarely white. Capsules broadly ellipsoid or oblong to ellipsoid, golden or brown hirsute, 4-7-valvate. Fl. May-Aug. Fr. Jul-Nov. Grassy slopes or under forests at 2700-5100 m. Distributed in Yunnan, Sichuan, Xizang, Gansu and Qinghai. Also in NE Myanmar.

**藿香叶绿绒蒿*****Meconopsis betonicifolia*** Franch.

多年生草本，偶尔二年生。茎直立，高30-150厘米。基生叶卵状披针形或卵形，边缘宽缺刻状齿裂。花3-6朵，生于最上部茎生叶腋内；花瓣蓝色或紫色，具明显的纵条纹；花丝白色；柱头淡绿色。蒴果长圆状椭圆形，长2-4.5厘米，无毛，自顶端微裂。花期6-8月。生海拔3000-4000米的林下或草坡。产云南西北部和西藏东南部。缅甸北部亦有。

Perennial herbs, occasionally biennial. Stems erect, 30-150 cm tall. Basal leaves ovate-lanceolate or ovate, margin broadly incised-toothed. 3-6 flowers at upper leaf axil; petals, blue or purple, with conspicuously longitudinal stripes; filaments white; stigmas virescent. Capsule oblong-elliptic, 2-4.5 cm long, glabrous, slightly valvate from apex. Fl. Jun-Aug. Forest understories, grassy slopes at 3000-4000 m.

Distributed in NW Yunnan and SE Xizang. Also in N Myanmar.

藿香叶绿绒蒿 *Meconopsis betonicifolia***总状绿绒蒿*****Meconopsis racemosa*** Maxim.

一年生草本。叶片全缘或波状，被黄褐色或淡黄色平展或紧贴的刺毛。单生总状花序，具花多至14朵；花瓣5-8，蓝色或蓝紫色。蒴果卵球形或狭卵球形，密被平展刚毛，4-6瓣裂。花期5-8月，果期7-11月。生海拔3000-4600(-4900)米的草坡、石坡或林下。产云南、四川、西藏、甘肃和青海。

Herbs, monocarpic. Leaves margin entire or undulate, both surfaces with fulvous or yellowish, spreading spines. Inflorescences a simple raceme with up to 14 flowers; petals 5-8, blue or bluish purple. Capsules ovoid or narrowly ovoid, with dense, spreading bristles, 4-6-valvate. Fl. May-Aug. Fr. Jul-Nov. Grassy slopes, stony slopes or forests at 3000-4600(-4900) m. Distributed in Yunnan, Sichuan, Xizang, Gansu and Qinghai.



总状绿绒蒿 *Meconopsis racemosa*

### 丽江绿绒蒿

#### *Meconopsis forrestii* Prain

一年生草本。主根圆锥形或萝卜状。叶通常全部基生，两面疏被紧贴、亮褐色的长硬毛。花序单花葶，直立，花葶被亮褐色、稍反曲的长硬毛；花3-7；花柱无。蒴果近狭圆柱形；无毛或疏被长硬毛，2-4瓣裂。花果期5-7月。生海拔(3100-)3400-4300米的草坡、岩石区或林缘。产云南西北部和四川西南部。

Herbs, monocarpic. Taproots conical or radishlike. Leaves all basal, both surfaces sparsely appressed bright brown hirsute. Inflorescences simple scapose, erect, scape with straw-colored, deflexed bristles; flowers 3-7; styles absent. Capsules narrowly subcylindrical, glabrous or sparsely hirsute, 2-4-valvate. Fl. and fr. May-

Jul. Grassy slopes, rocky places or woodland edges at (3100-)3400-4300 m. Distributed in NW Yunnan and SW Sichuan.

丽江绿绒蒿 *Meconopsis forrestii*

### 长叶绿绒蒿

#### *Meconopsis lancifolia*

(Franch.) Franch. ex Prain

一年生草本。主根萝卜状。叶多数或全部基生，倒披针形、匙形、倒卵形或椭圆披针形至狭倒披针形，全缘，两面无毛或被黄褐色卷曲硬毛。花瓣4-8，蓝色或紫色；花柱明显。蒴果无毛或疏被开展茶色刚毛，3-6瓣裂。花果期6-8月。生海拔3300-4800米的林下、多石区或高山草地。产云南、四川、西藏和甘肃。缅甸东北部亦有。

Herbs, monocarpic. Taproots radishlike. Leaves mostly or all basal, oblanceolate, spatulate, obovate or elliptic-lanceolate to narrowly oblanceolate, margin entire, both surfaces glabrous or brownish crispate-hirsute. Petals 4-8, blue or purple; styles conspicuous. Capsules glabrous or sparsely spreading fulvous setose, 3-6-valvate. Fl. and fr. Jun-Aug. Forests, rocky places or alpine meadows at 3300-4800 m. Distributed in Yunnan, Sichuan, Xizang and Gansu. Also in NE Myanmar.

长叶绿绒蒿 *Meconopsis lancifolia*