

蜀 韵 旷 野

——四川自然保护区

编著 本书编委会

四川出版集团
四川科学技术出版社



图书在版编目(CIP)数据

蜀韵旷野——四川自然保护区/本书编委会编著.
- 成都:四川科学技术出版社,2009. 6
ISBN 978 - 7 - 5364 - 6855 - 9

I. 蜀… II. 本… III. 自然保护区 - 简介 - 四川省
IV. S795.992.71

中国版本图书馆 CIP 数据核字(2009)第 099360 号

蜀韵旷野 ——四川自然保护区
SHUYUN KUANGYE——SICHUAN ZIRAN BAOHUQU

编 著 本书编委会
策划编辑 康利华
责任编辑 戴 林
封面设计 魏 威
版式设计 魏 威 康永光
责任出版 邓一羽
出版发行 四川出版集团·四川科学技术出版社
成都市三洞桥路 12 号 邮政编码 610031
成品尺寸 290mm × 290mm
印张 28 字数 1050 千 插页 3
印 刷 深圳雅昌彩色印刷有限公司
版 次 2009 年 6 月成都第一版
印 次 2009 年 6 月深圳第一次印刷
定 价 360.00 元
ISBN 978 - 7 - 5364 - 6855 - 9

■ 版权所有·翻印必究 ■

■ 本书如有缺页、破损、装订错误,请寄回印刷厂调换。
■ 如需购本书,请与本社邮购组联系。
地址/成都市三洞桥路 12 号 电话/(028)87734035
邮政编码/610031



Forestry Department of Sichuan Province (FDSP)

Forestry Department is one of the cabinet members of Sichuan Provincial People's Government, with forestry administration as its core mandate. Its main functions include forest ecological & environmental reconstruction, forest resources protection & management, organizing & coordinating of wetland conservation, land greening, afforestation, mountain enclosure for natural regeneration, cultivation of forests of public ecological welfare, water & soil erosion control, desertification prevention, land wildlife resources protection and management, creation and management of forest parks and forest & land wildlife nature reserves, biodiversity conservation, management, rehabilitation and improvement.

FDSP has organized and implemented Protection Project of Giant Panda and Its Habitat, Natural Forest Protection Project, Conversion of Farmland to Forest Program, Wildlife Conservation and Nature Reserve Construction Project, Wetland Conservation Project. FDSP has been conducting strict protection of forests, wildlife and wetlands, effectively protecting the natural ecological resources and environment of Sichuan Province, creating an annual ecological service value of 128.8 billion rmb in fields of soil protection, water-shed, carbon sink and oxygen emission, etc. Next, FDSP is going to kick off Sand and Stone Desertification Prevention and Control Program throughout the province.

四川省林业厅

四川省林业厅是主管林业工作的四川省人民政府的组成部门，主要负责四川省森林生态与环境建设、森林资源的保护和管理、湿地保护的组织和协调、国土绿化、植树造林、封山育林、生态公益林培育、水土流失和沙化及荒漠化防治、陆生野生动植物资源的保护和管理、森林公园以及森林和陆生野生动植物等类型自然保护区的建设和管理、生物多样性的保护和管理等生态保护、修复和改善工作。

四川省林业厅组织实施了大熊猫及其栖息地保护、天然林保护、退耕还林、野生动植物保护及自然保护区建设、湿地保护等生态保护工程，严格了森林、野生动植物和湿地保护的管理，有效地保护了四川省的自然生态环境，每年创造保育土壤、涵养水源、固定二氧化碳和释放氧气等生态服务价值1 288亿元。下一步还将启动防沙治沙工程以及石漠化和荒漠化的治理工程。



World Wide Fund for Nature (WWF)

Since it was founded in 1961, WWF has become one of the world's largest and most effective independent organizations dedicated to the conservation of nature. WWF now operates in around 100 countries, supported by nearly 5,200,000 people worldwide.

WWF has been active in China on the conservation of giant panda and its habitats since 1980, when it was invited by Chinese government as the first international NGO to work nature conservation. In 1996, WWF opened its Beijing office and then set up its presence in eight other cities across priority eco-regions in China. Today, WWF CPO programmes, such as species, forests, freshwater and marine, climate change and energy, education for sustainable development, wildlife trade and scientific development and international policy.

Since 1996, WWF has invested more than 320 million yuan (US\$40 million) in over 100 projects in China.

WWF's mission is to stop the degradaion of the planet's natural environment and to build a future in which humans live in harmony with nature by:

- Conserving the world's biological diversity
- Ensuring that the use of renewable natural resources is sustainable
- Promoting the reduction of pollution and wasteful consumption

世界自然基金会

世界自然基金会 (WWF) 是在全球享有盛誉的、最大的独立性非政府环境保护组织之一。自1961年成立以来，WWF一直致力于环保事业，在全世界拥有将近520万支持者和一个在100多个国家活跃着的网络。

WWF在中国的工作始于1980年的大熊猫及其栖息地的保护，是第一个受中国政府邀请来华开展保护工作的国际非政府组织。1996年，WWF正式成立北京办事处，此后陆续在全国八个城市建立了办公室。发展至今，共拥有80多名员工，项目领域也由大熊猫保护扩大到物种保护、淡水和海洋生态系统保护与可持续利用、森林保护与可持续经营、可持续发展教育、气候变化与能源、野生动植物贸易、科学发展与国际政策等领域。

自从1996年成立北京办事处以来，WWF共资助开展了100多个重大项目，投入总额超过3亿元人民币。

WWF的使命是遏制地球自然环境的恶化，创造人类与自然和谐相处的美好未来。为此它致力于：

- 保护世界生物的多样性；
- 确保可再生自然资源的可持续利用；
- 推动降低污染和减少浪费性消费的行动。



Mountain & Water Nature Conservation Center (MWNCC)

Founded in 1987, Conservation International (CI) is an international non-profit eco-protection organization headquartered in Virginia, U.S.A. CI's mission is to conserve the Earth's living heritage, our global biodiversity, and to demonstrate that human societies are able to live harmoniously with nature. CI applies innovations in science and technology, economics, policy, and community participation to protect biodiversity with projects in over 40 countries on four continents.

CI started to work in China from 2002 and managed Critical Ecosystem Partnership Fund (CEPF), which is a joint initiative of Conservation International, the Global Environment Facility, the Government of Japan, the John D. and Catherine T. MacArthur Foundation, the World Bank and L'Agence Française de Développement (joined in 2007). In the past years, CI has provided local organizations with almost 200 grants worth more than \$2.7 million directly in supporting China's biodiversity conservation projects and managed \$6.5 million of CEPF grants in the Mountains of Southwest China Biodiversity Hotspot which was nominated as one of the ten top priority regions in the world. CI in China aims to preserve China's endemic biodiversity and assist China's environmental friendly sustainable development together with our Chinese partners in future. Shan Shui Conservation Center is CI's major partner in China.

山水自然保护中心

保护国际 (Conservation International, 简称CI) 成立于1987年，是一个国际性非赢利环保组织。总部设在美国弗吉尼亚州，目前在全球四大洲包括中国在内的40多个国家开展生物多样性保护工作。CI的宗旨是保护地球上尚存的自然遗产和生物的多样性，并示范人和自然的和谐相处。CI通过科学技术、经济合作、政策影响和社区参与等多种方法来保护濒危物种、自然保护地和景观廊道。自2002年起，CI开始在中国开展生物多样性保护项目，并管理由法国开发署、保护国际、全球环境基金、日本政府、麦克阿瑟基金会和世界银行六家机构共同投资设立的关键生态系统合作基金 (Critical Ecosystem Partnership Fund, 简称CEPF)，工作区域主要包括在中国境内的全球生物多样性热点地区 (Biodiversity Hotspots)。CI在中国秉承CI的全球宗旨，与其合作伙伴一道致力于保护中国高度丰富的生物多样性，协助经济腾飞的中国实现人与自然的和谐及可持续发展。北京山水自然保护中心是CI在中国的重要合作伙伴。

蜀韻

曠野

—四川自然保護區

編著 本書編委會

四川出版集團
四川科學技術出版社







编委会
主任
副主任
委员

王平
戴柏阳
熊北蓉 唐代旭 杨旭煜 凌林 李晟之 奚志农 仇剑
徐健 朱敏 胡海 戴波 唐荣华 李建国 邹利勇
王玉琳 王鸿加 顾海军 张倩 古晓东 隆廷伦 刘世昌

策划
主摄影
撰文

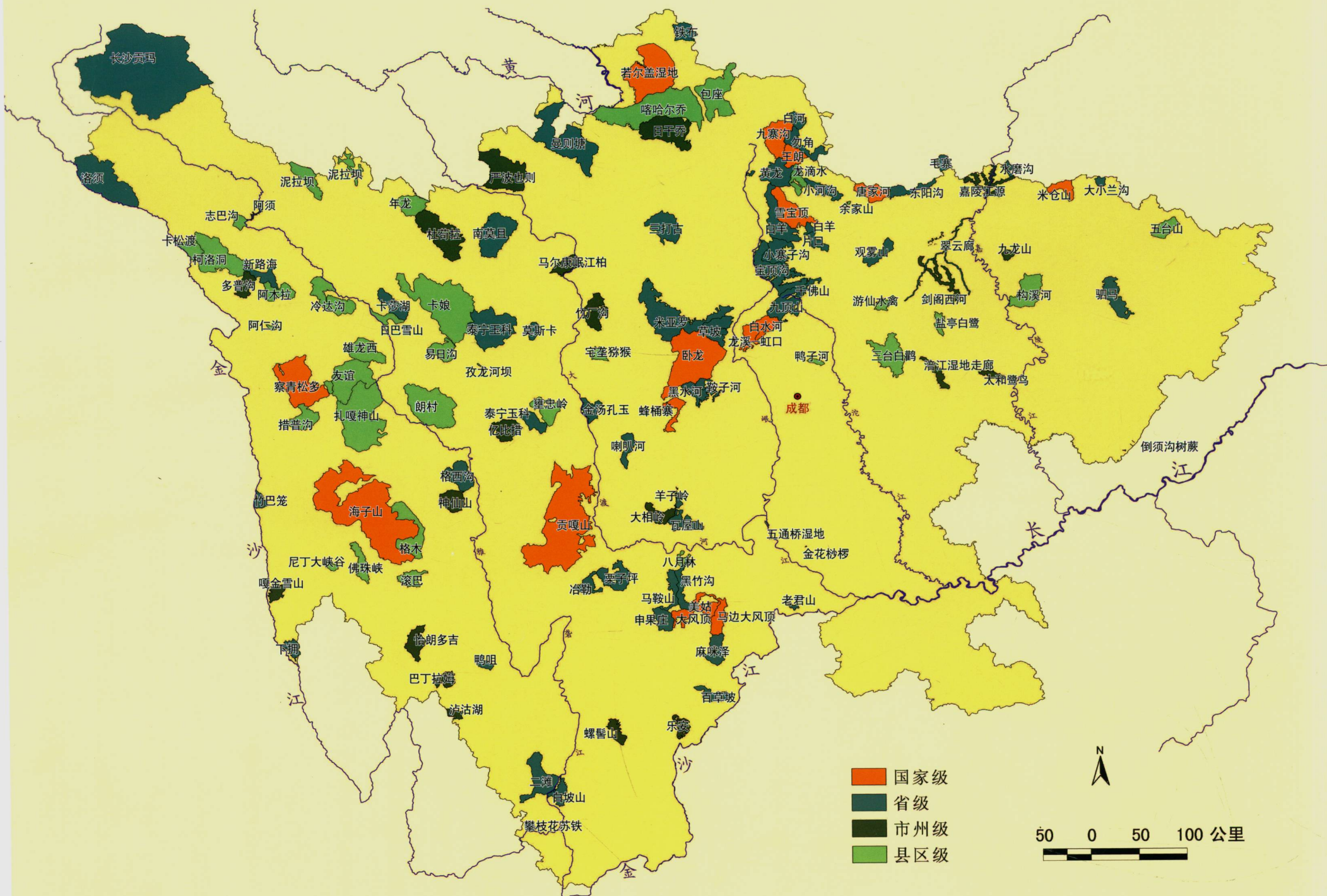
杨旭煜 凌林 李晟之 仇剑
吕玲珑 董磊 金平 余宁
杨旭煜 张迪 何依桦 仇剑 朱敏 胡海 傅怡雯
冉江洪 丁瑞华 唐荣华 邓武喜 罗布加它

书名撰写
装帧设计
制图
特约编辑
文稿翻译
科学顾问

戴柏阳
魏威 徐健
戴波
杨旭煜 徐健 仇剑 朱敏 胡海 朱靖丽
袁世军
胡锦鑫 印开蒲 曾宗永 葛文彬

致谢

本书出版得到了西南山地、野性中国、四川大学生命科学院、四川省林业科学研究院、四川省林业调查规划院等组织、四川省123个林业自然保护区的管理机构和相关市(州)、县(市、区)林业局的大力支持。同时,对吕植、孙珊、邵剑、朱林、刘少英、孙治宇、李明、唐小智等人对本书出版给予的大力帮助深表感谢。



目录

自序

独特而又生机盎然的四川野生生物和它们的庇护所。

大雪山自然保护区群

贡嘎山²⁸ 卡莎湖³⁶ 朗村³⁸ 泰宁玉科³⁹ 日巴雪山⁴⁰ 卡娘⁴²

莫斯卡⁴³ 亿比措⁴⁴ 易日沟⁴⁴ 攷龙河坝⁴⁵ 壅忠岭⁴⁵

沙鲁里山自然保护区群

海子山⁴⁸ 察青松多⁵⁴ 格西沟⁵⁸ 竹巴笼⁶² 新路海⁶⁶ 措普沟⁶⁸ 下拥⁷²

佛珠峡⁷⁴ 友谊⁷⁵ 尼丁大峡谷⁷⁶ 冷达沟⁷⁷ 鸭咀⁷⁸ 巴丁拉姆⁷⁹

恰朗多吉⁹⁰ 雄龙西⁸² 扎嘎神山⁸⁴ 阿仁沟⁸⁶ 格木⁸⁶ 志巴沟⁸⁷ 阿木拉⁸⁷

柯洛洞⁸⁷ 多普沟⁸⁸ 嘎金雪山⁸⁸ 阿须⁸⁹ 卡松渡⁸⁹ 滚巴⁹⁰ 神仙山⁹²

石渠色达和若尔盖丘状高原自然保护区群

长沙贡玛⁹⁶ 洛须¹⁰⁴ 若尔盖湿地¹¹⁰ 南莫且¹¹⁶ 杜苟拉¹¹⁶ 泥拉坝¹¹⁷ 严波也则¹¹⁸

年龙¹¹⁹ 喀哈尔乔¹²⁰ 日干乔¹²¹ 曼则塘¹²¹

岷山自然保护区群

唐家河¹²⁴ 王朗¹³² 九寨沟¹³⁸ 雪宝顶¹⁴⁶ 龙溪一虹口¹⁵² 白水河¹⁵⁶ 铁布¹⁵⁸

黄龙¹⁶² 九顶山¹⁶⁸ 白河¹⁷⁶ 宝顶沟¹⁸⁰ 勿角¹⁸¹ 小河沟¹⁸² 东阳沟¹⁸³ 千佛山¹⁸⁴

片口¹⁸⁵ 小寨子沟¹⁸⁶ 白羊¹⁸⁷ 余家山¹⁸⁸ 龙滴水¹⁸⁸ 包座¹⁸⁹

大巴山自然保护区群

米仓山¹⁹² 大小兰沟¹⁹⁸ 毛寨²⁰⁶ 嘉陵江源²⁰⁷ 五台山²⁰⁸ 水磨沟²⁰⁸

邛崃山自然保护区群

卧龙²¹² 蜂桶寨²¹⁸ 三打古²²⁴ 黑水河²³⁰ 米亚罗²³⁴ 喇叭河²³⁸ 鞍子河²⁴² 草坡²⁴⁴

竹厂沟²⁴⁵ 宅垄獼猴²⁴⁵ 金汤孔玉²⁴⁶ 马尔康岷江柏²⁴⁷

大小凉山自然保护区群

马边大风顶²⁵⁰ 美姑大风顶²⁵⁴ 黑竹沟²⁵⁶ 老君山²⁵⁸ 乐安²⁶² 螺髻山²⁶⁴

麻咪泽²⁶⁶ 申果庄²⁶⁷ 百草坡²⁶⁸ 马鞍山²⁷⁰ 八月林²⁷¹

大小相岭自然保护区群

冶勒²⁷⁴ 栗子坪²⁷⁶ 瓦屋山²⁸² 羊子岭²⁸⁴ 大相岭²⁸⁴

雅砻江山原和盐源宽谷盆地自然保护区群

攀枝花苏铁²⁸⁸ 泸沽湖²⁹² 二滩³⁰⁰ 白坡山³⁰⁰

四川盆地与低山和丘陵自然保护区群

三台白鹤³⁰⁴ 构溪河³⁰⁶ 观雾山³⁰⁸ 剑阁西河³⁰⁹ 翠云廊³¹⁰ 九龙山³¹²

驷马³¹³ 倒须沟树蕨³¹⁴ 游仙水禽³¹⁴ 盐亭白鹭³¹⁵ 涪江湿地走廊³¹⁵

五通桥湿地³¹⁶ 太和鹭鸟³¹⁶ 金花桫欏³¹⁷ 鸭子河³¹⁷

四川省特有或主要分布于四川的珍稀濒危野生动物

四川省特有或主要分布于四川的珍稀濒危野生植物

四川省林业自然保护区名录

动植物中文拉丁名索引

文稿作者

参考资料

照片拍摄者和提供者

Author's Preface

In a broad context, the history of nature reserve may be traced back to 1,000 years ago. It evolved from the privileged land serving royal religious and spiritual needs, to contemporary nature reserve serving spiritual encouragement and esthetic purposes, to modern nature reserve serving the interests of biodiversity conservation and sustainable socio-economic development. In 1872, the United States created the first nature reserve of modern sense—Yellow Stone National Park. Today, over 10,000 nature reserves are created all over the world and China claims more than 2,000 reserves.

Sichuan is one of the provinces sheltering most rich endemic species and ranks the second in China in terms of biodiversity. As the chairing executive government agency for over 85% of the protected wildlife of national importance, Sichuan Forestry Department (SFD) created 123 nature reserves of wildlife, forest and wetland from 1963 to 2007, covering a territory of 7.68 million hectares, or 90% of the total reserve area and 15.8% of the total land of Sichuan. These reserves are located in Daxue Mountains, Shalu Mountains, Bayankala Mountains, Minshan Mountains, Qionglai Mountains, Liangshan Mountains, Xiangling Mountains and Daba Mountains, etc. They basically shelter areas with most abundant biodiversity, spectacular landscape and biodiversity-rich region such as West Sichuan Plateau and Hengduan Mountains, forming a sophisticated, high-value reserve network which effectively protects the water-shed region of the upper reaches of the Yangtze and Yellow River.

Over 1,000 species of vertebrate wildlife and 10,000 species of wild vascular plants, numerous species of insects, mollusk, moss, lichens and bacteria, inhabit the vast land of the Province. Sichuan is the homeland and modern central range of the Giant Panda, 77% wild Giant Pandas and 83% of world captive population are found here. In this book, readers shall discover many beautiful species endemic to Sichuan, like Giant Panda, Golden Monkey, Sichuan Sika Deer, Dwarf Blue Sheep, Sichuan Hill Partridge, *Cycas Panzhihuaensis*, *Kingdonia Uniflora*, Chinese Dove-tree, *Alsophila spinulosa*, Sichuan Larch, *Cupressus chengiana*, etc. Some of them are only found in Sichuan. Meanwhile, their habitat including snow mountains, glaciers, rocky areas, rocky steppe, alpine meadows, shrubs, forests and wetland, present human beings unique charm. Particularly Snow peaks and glaciers of Mount Gongga, peat wetland of Ruoergai, colorful forests of Mount Micangshan, calcium sediment lakes of Jiuzhaigou and Huanglong, etc. are highlight attractions to people around the world. Photos of Giant Panda, Takin, and Leopard Cat in this book by infrared automatic camera are extremely valuable exhibiting their peaceful life in pure natural circumstances.

In line with the requirements for ensuring national ecological security, building ecological and Harmony Sichuan, foresters in Sichuan, especially biodiversity protection staff, are tasked to protect these precious heritages, saving them to live in harmony with our future generations.

In the process of editing this book, we collect the most up-to-date information of the nature reserves of forestry sector, strive to present our readers a complete and true picture of the beauty of Sichuan. Due to knowledge limits, some new discoveries may not be included in this book and we would like to welcome comments and recommendations from our readers.

自序

广义上,自然保护区的历史可以追溯到1 000年前。它经历了从宗教和精神需要或为皇家权贵服务的专属地,到提供精神鼓舞和审美需求的近代自然保护区,再发展成以生物多样性保护和经济社会可持续发展为主要载体的现代自然保护区的历程。1872年,美国建立起世界上第一个现代意义上的自然保护区——黄石国家公园。今天,全球已建立起各种类型的自然保护区上万个,其中我国有两千余个。

四川是我国特有物种种类最多的省份,野生动植物种和生态系统多样性位列全国第二。作为全省85%以上国家重点保护野生动植物的主管部门,从1963年开始至2007年,四川林业系统已建立野生动植物、森林、湿地等多种类型的自然保护区123个,总面积达768万公顷,占四川自然保护区总面积的十分之九,覆盖了全省幅员面积的15.8%;分布范围遍及大雪山、沙鲁里山、巴颜喀拉山、岷山、邛崃山、凉山、大小相岭、大巴山等大小十余个山系,基本涵盖了四川生物多样性最丰富的精华地带、自然风光最优美的名山大川以及川西高原和横断山脉的物种富集区,组成了类型多样、保护价值极高的自然保护区网络,有效地保护了长江、黄河上游重要的水源涵养地。

1 000余种野生脊椎动物和近万种野生维管束植物,以及种类众多的昆虫、软体动物、苔藓、地衣和真菌,栖息和生长在四川广袤的大地上。四川也是国宝大熊猫的故乡和现代分布中心,全球77%的野生大熊猫和83%的圈养大熊猫生活在这里。在本书中,读者可以欣赏到我国特有的美丽物种——大熊猫、川金丝猴、四川梅花鹿、矮岩羊、四川山鹧鸪、绿尾虹雉、四川雉鹑、攀枝花苏铁、独叶草、珙桐、桫欏、四川红杉、岷江柏等珍稀动植物,其中一些物种只有在四川才能有幸见到。同时,它们栖息的雪山、冰川、裸岩、流石滩、高山草甸、灌丛、森林和湿地,也在向世人展示着其独特的魅力,特别是贡嘎山的雪山冰川、若尔盖的泥炭沼泽、米仓山的红叶彩林,还有九寨黄龙的钙华湖泊……本书中红外线自动照相机拍摄的大熊猫、牛羚、雪豹、豹猫等照片极为珍贵,真实地再现了完全自然状态下野生动物的原生态生活。

按照保障国家生态安全以及建设和谐四川、生态四川的要求,四川所有的务林人,特别是生物多样性保护工作者,有责任保护好这些宝贵的自然遗产,让我们的子孙后代与它们长久、和谐地生活在同一片蓝天下。

在本书的编写过程中,我们收集了林业系统自然保护区现有的最新数据,力求全面、真实地反映四川的自然之美,但是由于学识所限,研究不够深入,一些新的发现可能在本书中未能体现,著述也还有偏颇之处,敬请读者批评指教。



Sichuan, the Shelter of Unique and Vigorous Wildlife

200 million years ago, Sichuan slept quietly under deep sea water. Along with the movements of the earth shell, the topography of high-east and low-west changed to high-west and low-east, which led to sea water flow-out of Sichuan Basin, shaping the way it is today. Around 2 million years ago, Sichuan witnessed the early activities of ancient human beings. The skull fossils of the Ziyang Man unearthed in the middle of Sichuan and the early tools and beast bones found at the Mount Yangzi and Hanyuan County recorded human activities of Sichuan ancestors from several hundreds of thousands years to ten-twenty thousand years ago. About 10,000 years ago, Sichuan entered the New Stone Age, Sichuan ancestors left behind their marks at remains of Bianduishan, Upper Minjiang River, Dadu River & Qingyi River, Lizhou of Xichang and Chengdu. 4,000 years ago, at Sanxingdui of Guanghan, early city emerged, creating primitive characters and bronze tools. The center of ancient civilization—namely Kingdom of Chanchong, Boguan, Yuhu, Duyu and Bielingwang developed and sustained. The Baodun Culture of Ancient Shu Kingdom on Chengdu Plains, along with the Hongshan Culture of West Liao today, are two earliest and independent cradle and source cultures of Chinese Civilization as a whole. In 316 BC, Zhang Yi and Sima Cuo led the Qin army into Sichuan along the Golden Ox Trail built with heavy cost by late Shu Kings, conquered Chengdu, then capital of Shu Kingdom, claiming Sichuan as part of the United China.

The high mountains and deep gorges around the Sichuan Basin stopped the intrusion of cold currents from the north but failed to shelter Sichuan from numerous bloody wars. From its wars with Xia Kingdom, Shang Kingdom, Qin kingdom and Ba kingdom in the era of ancient Shu Kingdom, to the West Han Dynasty and Three-state Period, Sichuan became the core battle fields between Liu Bei & Zhu Gelang against Cao Chao & Sima Yi. Then in late Song Dynasty and early Yuan dynasty, as well as late Ming Dynasty and early Qin Dynasty, Sichuan suffered from several massive battles. These wars brought Sichuan severe disasters and in the year of 1663, the total population was less than 600 000. Vast land was abandoned and tigers, leopards dwelled in Chengdu. In 1812, after the second mass immigration from Hubei and Guangdong province, the population of Sichuan recovered to 22 million.

After a couple of administrative zoning adjustments, today, Sichuan situates in the southwest China, covering five geological zones, Sichuan Basin, Qinghai-Tibetan Plateau, Hengduan Mountains, Yunnan-Guizhou

Plateau and Qinba Hilly Land. Its eastern, southern and southwestern territory is part of the upper reaches of the Yangtze River, while its northwestern corner, Ruogai and Changshagongma wetlands is part of the Yellow River drainage. Located between 92°21' to 108°30' East Longitude, 26°03' to 34°19' North Latitude, Sichuan holds a total area of 485,000 square kilometers, 5.1% of China and is the fifth largest province.

During the Quaternary Glaciers Period, Sichuan was free from the severe invasion and damages by northern continent glaciers, hence many old species survived and continued to evolve in a peculiar environment. Ever since human society started, low fluctuations of local population made it unnecessary to farm in the hilly areas around the Basin and western mountainous region, primary forests, natural wetlands and vast grasslands remained intact. The unique geological locations linking the south and the north, diversified topography and landforms, 7,400 meters of altitude difference and sophisticated types of climate, soil and water conditions, give rise to rich biodiversity and abundant natural landscapes, presenting a spectacular pattern of both northern and southern species. This region has developed many flora and fauna species endemic to Sichuan, such as *Parakmeria omeiensis*, *Magnolia sinensis*, *Magnolia dawsoniana*, *Larix mastersiana*, *Pseudotsuga xichangensis*, *Michelia wilsonii*, *Picea montigena*, *Acer pehpeiense*, *Ormosia yaanensis*, *Camellia szechuanensis*, *Heteropolygonatum pendulum*, *Manglietia szechuanica*, *Lindera tienchuanensis*, *Machilus sichuanensis*, *Paeonia szechuanica*, *Acanthochlamys bracteata*, *Cervus nippon*, *Pseudois schaeferi*, *Eozapus setchuanus*, Sichuan Hill Partridge, *Jpalura batangensis*, *Achalinus meiguensis*, *Elaphe perlacea*, *Protodynobius puxiongensis*, *Tylotriton taliangensis*, *Oreolalax chuanbeiensis*, *Megophrys nankiangensis*, *Amolops lifanensis*, *Schizothorax prenanti*, *Euchiloglanis davidi*, etc. making Sichuan one of the provinces with most number of endemic wildlife in China.

In those population-sparse wilderness of mountains, grasslands and deserts of the province, Sichuan shelters 708 species of ferns, one third of China's total vascular plants, 88 species of gymnosperm and 8 450 species of angiosperm, including 14 species of class-1 List of National Conservation Importance, such as *Cycas panzhihuaensis*, Chinese Dove-tree, *Taxus chinensis*, *Kingdonia uniflora*, etc. 49 species of Class-2 List of National Conservation Importance are found in Sichuan, such as *Fagus hayatae*, *Picea purpurea*,

Cupressus chengiana, etc., claiming one fifth of China's total protected species. In 2007, forest cover in the province measures at 31.3%, with a total forested area of 15.17 million hectares under 100 forest communities of sub-tropical evergreen broadleaf forest, subtropical conifer forest, subtropical evergreen conifer forest and mountain hard-leaf evergreen broadleaf forest, etc. Mass herbal plants cover an area of 18.2 million hectares, including alpine meadows, alpine shrubs, sub-alpine meadows, frigid marshlands, sub-alpine thin forests and grasslands, mountain thin forest and grasslands, mountain shrub land, mountain grassland, mountain meadows, arid river valley shrub & grassland, etc. In addition, Sichuan holds 3 million hectares of natural wetlands, among which the 300,000-ha Ruogai Wetland is the largest peat wetland in China and it was listed as Wetland of Global Importance in 2008. The yellow River flows through it and its run-off volume increases 29% to 45%, hence the true Kidney of the Yellow River. The 270,000-ha frigid herbal wetland located in Shiqu and Seda County, is one of the important sources for the Yangtze, Yellow and Lancang River.

Over 50% of China's total vertebrate wildlife live in their well preserved and expanding natural habitat in Sichuan, including 219 species of mammals, 647 species of birds, 105 species of reptiles and 111 species of amphibians. There are 32 species of Class-1 of National Conservation Importance, such as Giant Panda, Sichuan Golden Monkey, Sichuan Hill Partridge, Black-necked Cranes, Forest Musk Deer, Horse Must Deer, White-lipped Deer, Tibetan Gazelle, Tibetan Wild Ass, *Mergus squamatus*, etc. 113 species of Class-2 of National Conservation Importance, including Lesser Panda, *Pseudois nayaur*, Macaque, Tibetan Macaque, Black Bear, White-reared Deer, Blood Pheasant, Tragopan, etc., altogether claiming 43% of China's total protected fauna species. Sichuan is the homeland and modern core range of the Giant Pandas, holding 1,206 wild individuals which are 76% of the total. The province shelters 1.77 million hectares of Panda habitat, 77% of the total in China. In the rivers, lakes, reservoirs and other watered areas, 241 species of fish inhabit, including 50 endemic species such as *Yunnanilus sichuanensis*, *Triplophysa xiqiensis*, *Culter mongolicus qionghaiensis*, *Belligobio pengxianensis*, *Schizothorax prenanti*, *Schizopygopsis malacanthus*, *Heminyzon yaotanensis*, *Euchiloglanis davidi*, *Pareuchipoglanis sichuanensis*, *Pareuchipoglanis tianquanensis*, etc. Different from those land wildlife, suffering from water pollution and infrastructure development along the Yangtze River and its tributaries,

some precious and rare species today are difficult to see, such as *Acipenser sinensis*, *Acipenser dabryanus*, *Psephurus gladius*, *Myxocyprinus asiaticus*, *Procypris rabaudi*, *Belligobio pengxianensis*, *Schizothorax prenanti*, *Schizopygopsis malacanthus*, *Heminyzon yaotanensis*, *Pareuchipoglanis sichuanensis*, *Pareuchipoglanis tianquanensis*, etc.

In order to secure that these valuable wildlife live in harmony with our future generations here in Sichuan, in 1963, a couple of nature reserves were created, namely Wolong, Wanglang, Baihe, Labahe and Yazui Nature Reserve. Through efforts of four decades, by the end of 2007, the forestry sector of Sichuan established 123 nature reserves of forest & wildlife, wetland, desert, wild fauna and wild flora, with a total area of 7.68 million hectares, 15.8% of the total territory of Sichuan, ranking the fifth, the sixth and the fourth in China respectively. Reserves created and managed by forestry sector claim 72.4% and 90.4% of Sichuan's total reserves and areas respectively, of which 16 are national nature reserves and 49 are provincial nature reserves. Wolong and Jiuzhaigou joined the World Man & Biosphere Reserve Network created by UNESCO. Jiuzhaigou and Huanglongsi were listed as World Heritage Sites by UNESCO. Wolong, Fengtongzhai, Labahe, Caopo, Anzihe, Heishuihe Nature Reserve hold the most vital Panda habitat and were listed as World Heritage Sites. There reserves scatter in Minshan, Qionglaihan, Liangshan, Xiangling, Dabashan, Daxueshan, Que'ershan, Shalulishan, Munimangqishan mountain systems of Sichuan, basically covering the most important biodiversity-rich regions, most spectacular landscape, northwest wetland and frigid zones. They shape a reserve network with comprehensive types and high conservation necessity and values, which effectively protect 90% wildlife species, 60% of wild Giant Panda Population, over 50% of natural wetlands, most water-shed areas of the upper reaches of the Yangtze and Yellow River, making significant contributions to national ecological security and water supply of China.

Looking ahead to the year of 2020, the number of reserves created by Sichuan forestry sector shall reach 150 and stabilize, protecting 8.25 million hectares or 17% of the territory of Sichuan. The number of national nature reserves will be more than 30, and a sound integrated nature reserve system shall be in place to effectively protect 95% wildlife species and 95% of typical eco-system, pushing conservation in Sichuan on the sound and sustainable track.

独特而又生机盎然的四川野生生物和它们的庇护所

两亿年前，四川尚蛰伏在深深的海水之下。随着地壳的不断运动，山峰突兀，地势由东高西低乾坤轮转为西高东低，海水从山谷间排出，四川盆地就此变干。到了200万年前，四川开始有了古人类活动。四川中部资阳县的“资阳人”头骨化石以及成都羊子山和汉源县发现的几十万年前到2万~1万年前古人遗存的生产工具和兽类遗骨，记录了四川先民早期的生息劳动信息。距今1万年前，四川进入新石器时代，先人们在绵阳边堆山遗址、岷江上游遗址、大渡河和青衣江遗址、西昌礼州遗址以及成都遗址上留下了他们的足迹。4000年前，广汉三星之地出现了早期城市、原始形态的刻画文字和青铜器。一个古文明中心——蚕丛、柏灌、鱼凫、杜宇和鳖灵王创建的古蜀王国在四川诞生并延续下来。成都平原古蜀国的宝墩文化同辽西的红山文化，是中华大地上两种悠久和独立的始源文化，是中华多元一体的大文化中最早的文明源头之一。公元前316年，秦大夫张仪、司马错率师伐蜀，沿古蜀国末代蜀王劳民伤财开凿的金牛道进入盆地，攻占成都，使古蜀国疆域成为中华大一统的一部分。

环绕四川盆地的高山和峡谷，阻挡了北方冷空气的侵袭，却挡不住战争的阴影。从古蜀国与夏国、商国、秦国、楚国和巴国的交战，到东汉三国时期四川成为了战争的焦点。再到宋末元初、明末清初连绵不断的战争，给巴蜀地区带来了深重的灾难，人口出现大幅减少。1663年时全川人口竟不足60万人，千里沃野半没于荒野茂草中，甚至成都城内也有虎、豹栖息。直到第二次“湖广填四川”后的1812年，巴蜀人口才逐渐恢复到2200万。

经过历次区划调整，今天的四川位于中国西南部，地跨四川盆地、青藏高原、横断山脉、云贵高原和秦巴山地五大地貌单元，省域东部、

南部和西南部属长江上游，西北隅的若尔盖沼泽和长沙贡玛沼泽属黄河流域，地理位置在东经92°21′~108°30′、北纬26°03′~34°19′之间，总面积48.5万平方公里，占中国国土总面积的5.1%，在省域面积上是第五大省。

第四纪冰期，四川免于北方大陆冰川的严重侵袭和破坏，众多古老物种在此保存下来，并在特异环境中继续演化。进入人类社会后，巴蜀人口的低水平波动，客观上使盆周山地和川西地区丧失了开垦的必要性，原始森林、自然湿地和广袤的草原在此原生态地保存下来。南北交汇的地理区位、独特多样的地貌构成、7400米的海拔高差以及复杂的气候、土壤、水文等自然条件，演替和进化出这里极为丰富的生物多样性和自然景观，从而形成了今天南北物种交汇、孑遗物种繁多的格局：发育出峨眉拟单性木兰、圆叶玉兰、康定木兰、四川红杉、西昌黄杉、峨眉含笑、康定云杉、五小叶槭、雅安红豆、四川山茶、垂茎异黄精、四川木莲、天全钩樟、四川润楠、四川牡丹、芒苞草、四川梅花鹿、矮岩羊、木里鼠兔、四川林跳鼠、四川山鹧鸪、巴塘攀蜥、美姑脊蛇、横斑锦蛇、普雄原蜥、大凉疣蜥、凉北齿蟾、南江角蟾、理县湍蛙、齐口裂腹鱼、青石爬鲶等种类繁多的四川特有物种，成为中国特有物种最多的省份。

在四川远离人口稠密区的蛮荒山野和广阔草原、茫茫荒漠中，占中国维管束植物种类三分之一的708种蕨类植物、88种裸子植物和8450种被子植物以其独特的方式茁壮地成长，争奇斗艳。四川有包括攀枝花苏铁、珙桐、红豆杉、独叶草等国家一级保护野生植物14种，连香树、楠木、西康玉兰、水青树、香果树、岷江柏等国家二级保护野生植物49种，合计超过国家保护野生植物种类的五分之一。它们组成了四川总面积1517万公顷的亚热带山地森林（包括亚热带

常绿阔叶林、亚热带针叶林、山地硬叶常绿阔叶林等），森林群系超过100个。2007年全省森林覆盖率达31.3%。众多的草本植物还构成了总面积超过1820万公顷的四川草地生态系统（包括高山草甸草地、高山灌丛草地、高寒沼泽草地、山地疏林草地、山地灌木草地、干旱河谷灌丛草地、山地稀树草丛草地等）。除此之外，四川的自然湿地达300余万公顷，其中面积为30万公顷的若尔盖泥炭沼泽是中国最大的泥炭沼泽，2008年被列入国际重要湿地名录。黄河流经这里，径流量增加29%~45%，是名副其实的“黄河之肾”；位于石渠、色达粒状高原，面积达27万公顷的高寒草本沼泽，是长江、黄河和澜沧江等三江之源的重要组成部分。

超过中国陆生脊椎动物种类一半的219种兽、647种鸟、105种爬行动物和111种两栖动物，生活在四川保存完好并正在恢复和扩大的栖息地中，包括大熊猫、川金丝猴、四川山鹧鸪、黑颈鹤、林麝、马麝、白唇鹿、藏羚、藏野驴、中华秋沙鸭等国家一级重点保护野生动物32种，小熊猫、岩羊、猕猴、藏酋猴、黑熊、白臀鹿、血雉、红腹角雉等国家二级重点保护野生动物113种，合计超过国家重点保护野生动物种类的43%。四川是国宝大熊猫的故乡和现代分布中心，栖息有野生大熊猫1206只，占现存野生大熊猫总数的76%，大熊猫栖息地面积177万公顷，占全国大熊猫栖息地总面积的77%。在四川的江河、湖泊和库塘中，241种鱼类遨游其间（包括四川云南鳅、西溪高原鳅、邛海鮡、彭县似鲃、齐口裂腹鱼、大渡软刺裸裂尻鱼、窑滩间吸鳅、青石爬鲶、四川鲃、天全鲃等50余种四川特有鱼类）。与陆生野生动物的境遇不同，受江河污染以及长江干流和支流建设的影响，中华鲟、达氏鲟、白鲟、胭脂鱼、岩原鲤、彭县似鲃、齐口裂腹鱼、大渡软刺裸裂尻鱼、窑滩间吸鳅、四川鲃、

天全鲃等珍贵濒危种类已经难觅踪迹。

为了让这些自然的精灵能够与我们以及子孙后代共同和谐地生活在四川的大地上，1963年，四川建立起卧龙、王朗、白河、喇叭河、鸭咀等第一批科学意义上的自然保护区。经过四十余年的努力，截至2007年底，四川林业系统共建立森林和野生动物、湿地、荒漠、野生动物、野生植物等各种类型的自然保护区123个，总面积768万公顷，占全省国土面积的15.8%。其中国家级自然保护区16个、省级自然保护区49个。卧龙、九寨沟自然保护区加入了联合国教科文组织人与生物圈保护区网，九寨沟、黄龙寺自然保护区被列入了世界自然和文化遗产名录，卧龙、蜂桶寨、喇叭河、草坡、鞍子河、黑水河等6个自然保护区作为大熊猫栖息地世界自然遗产地的最精华部分，进入了世界自然遗产名录。四川林业自然保护区已遍及岷山、邛崃山、凉山、大小相岭、大巴山、大雪山、雀儿山、沙鲁里山、牟尼芒起山等大小十余个山系，基本涵盖了四川省天然林区生物多样性最丰富的精华之地、自然风光最优美的名山大川、著名的川西北沼泽湿地和甘孜高原荒漠区，组成了类型多样、门类齐全、布局较全面、保护价值极高的自然保护区网络，有效地保护了四川90%的野生动植物种类；有效地保护了50%以上的自然湿地以及长江、黄河上游重要的水源涵养地和水量补给区，为保障国家的生态安全和水安全作出了重要贡献。

展望2020年，四川林业自然保护区总数将达到并稳定在150个以上，保护管理面积达到825万公顷，占四川省国土面积的17%左右，其中国家级自然保护区超过30个，形成完备的四川自然保护区保护管理体系，使95%的野生动植物种类和95%的典型自然生态系统得到有效的保护，使濒危野生动植物物种的生存环境步入良性循环。









