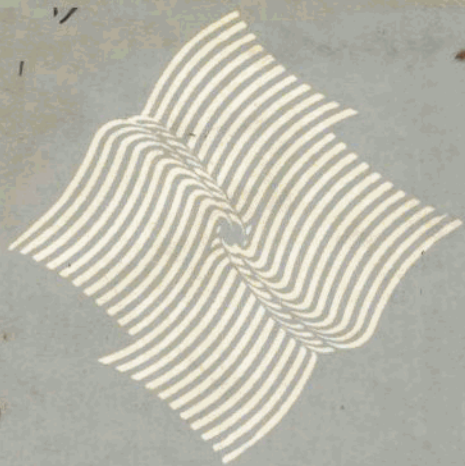


植物生态学研究进展

Advance in Plant Ecology

钟章成 著



植物生态学研究进展

——钟章成论文选

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【作者介绍】

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作者在西南师范大学任教42年,曾担任植物分类学、植物地理学、地植物学、植物群落学、植物生理生态学、植物种群生态学等教学工作.从1979年至今招收硕士研究生共13届34人,博士生6届6人(其中荷兰博士生3届3人).42年来致力于植物生态学与植物种群生态学的教学与研究工作,尤其对亚热带常绿阔叶林生态学进行了系统的研究.目前主持国家自然科学基金重点项目《植物种群生态适应机理研究》工作.先后主编有:《常绿阔叶林生态学研究》,1989年获四川省人民政府科技进步二等奖.《常绿阔叶林生态系统研究》,1994年获国家教委科技进步三等奖.《自然环境概论》,1988年获四川省环保科技一等奖.《慈竹克隆种群能量生态学研究》(第二完成人),1995年获四川省人民政府科技进步三等奖.《四川植被》(副主编),1981年获四川省人民政府重大科学技术研究成果三等奖.此外还参加《中国植被》专著编写工作,并于1987年获国家自然科学二等奖.

作者于1991年获国务院颁发政府特殊津贴,1991年评为四川省优秀研究生导师,1993年获曾宪梓教育基金高等师范院校教师二等奖.

【Author's Introduction】

Prof. Zhong Zhangcheng, tutor of Ph. D. students, was born at Shaoxing, Zhejiang Province in October, 1929. He finished postgraduate study and graduated from Biology Department, Northeast Normal University in July, 1954, and came to work in Southwest China Normal University in September, 1954. He was entitled as assistant, instructor, associate professor, and is professor now. In March, 1960, he was appointed as chairman of Biology Department of Southwest China Normal University. In October, 1981, appointed as vice-president of the same university and worked as president in January, 1986. In March, 1993, his term of office expired. Since then, he has been entitled as chairman of university council of SW China Normal University and engaged in teaching and scientific research work. He is concurrent professor of Northeast Normal University, Hangzhou University, Suzhou University and Sichuan Normal University. Also, it is standing council member of China Ecological Society, board chairman of Sichuan Ecological Society, vice-chairman of Chongqing Scientific and Technological Association, standing member of Sichuan Scientific and Technological Association, Ph. D. co-supervisor of Utrecht University, Holland and honorary member of Advisory Council of International Biography Association.

Prof. Zhong has worked for 42 years in SW Normal University, and lectured to students on Plant Taxonomy, Plant Geography, Geobotany, Plant Synecology, Plant Physiological Ecology and Plant Population Ecology. Up to now, has enrolled 34 students for master degree and 6 Ph. D. students (including 3 Ph. D. students attaining doctoral degree in Holland). During the 42 years, he has thrown himself in teaching and research work in Plant Ecology and Plant Population Ecology. Especially, he has conducted a systematic research on subtropical evergreen broad-leaved forest. Now he is in charge of major project: Study on Mechanism of Plant Population Ecological Adaptation, supported by Chinese Natural Science Fund. Prof. Zhong edited or co-edited many books, including: Research on Evergreen Broadleaved Forest Ecology (won second-class award on scientific achievements given by Sichuan Provincial Government in 1989), Research on Evergreen Broadleaved Forest Ecosystem (won third-class award on scientific achievements given by State Education Commission in 1994), Introduction of Natural Environment Conservation (won first-class award on environment protection given by Sichuan Provincial Government in 1988), Research on Energetic Ecology of *Sinocalamus affinis* Colonial Population (co-worked with another researcher, won third award on scientific achievements given by Sichuan Provincial Government in 1995) and Sichuan Vegetation (vice chief editor, won third award on major scientific and technological research achievements given by Sichuan Provincial Government in 1981). Moreover, participated in edition of China Vegetation (won second-class award on natural science given by State in 1987).

In 1991, got honorarily Special Subsidy rewarded by State Council, and was entitled as Excellent Postgraduate Tutor in Sichuan Province. In 1993, got second-class award for teachers in higher teacher's colleges subsidized by Zeng Xianzi Education Fund.

序

植物生态学是植物学的一门分支学科,简单地说就是研究植物相互间以及植物与环境间相互关系的规律,有个体生态学、群体生态学和生态系统学等几个层次.近20年来,由于人们逐渐意识到研究环境,保护环境问题的紧迫性,该学科获得了蓬勃的发展,学科划分门类也越来越精细.这无疑是与整个现代生物学向微观和宏观两个方向同时发展而派生出诸多研究层次的趋势相一致的.

虽然我一生主要从事植物分类和植物区系地理学的基础研究,但它们是植物学其它许多分支学科的重要基础.只是在早期,曾参加中国植被区划的全国性工作,并于此基础上领导了后来《中国植被》的编著出版,所以,在植被地理方面也做了一些初步工作,而对于群落生态和个体生态则所知甚少.

现在我很高兴地阅读了钟章成教授最近收编的他本人的《植物生态学研究进展》系列文集的编写提纲.深感该书的收录编写是很有意义的.因为它系统地总结了一个真正的植物生态学家几十年来有代表性的工作成果,毫无疑问对学科的发展和人才的培养均有启示意义.他的工作主要以我国的亚热带常绿阔叶林及其优势种为对象,颇具特色.这一在东亚颇为突出的植被类型是同属北半球的西欧和北美所没有的.他的研究是在植物生态学的各个层次上开展的,同时也涉及到环境污染和生物多样性保护等实际问题,既有理论意义,也有实用价值.因此,说这一工作是对常绿阔叶乔木的生理生态和种群生态进行了比较全面和深入的研究应是恰如其分的.

该书所收集之文稿,同时也贯穿着一个学科近20年发展的脉络,基本上反映了植物生态学在中国发展的主要方向.本书作者所做工作能从单纯群落学的观点,进行植物生理生态、种群生态的研究,并进一步和生态系统联系起来,这对我国今后类似的工作,将是既得风气之先,又有无限前途.目前,植物生态学发展很快,各种手段、技术的应用日新月异,展示了一个广阔的发展前景.但是,仍能在中观水平上立足于野外实际做工作的作风有待重视加强和大力提倡.钟章成教授及其手下一批年轻学者在这方面做得较好.本人曾参加早年西双版纳生物地理群落定位站的建立和领导工作,也曾在不同的层次上进行过野外植被考察和研究,对于本书之编者有深切的嚆鸣之感.今于出书之始,乐为之序,尚需同好者以实际行动共勉.

吴征镒 院士

于中科院昆明植物研究所

1996-9-19

前 言

《植物生态学研究进展》系作者从百余篇论文中选择了 80 篇论文组成,主要属于 70 年代至今的作品。新中国成立以后的植物生态学研究,在我国基本上可以分为四个阶段。50 年代向苏联学习,直至 60 年代以苏联学派为主体影响着中国植物生态学的研究,而且研究重点是植物群落学,其基本方法是描述性的和定性的研究。70 年代英美学派流入中国,威斯康星学派成了主体,研究方法由定性走向定量。80 年代后期至今,其研究领域不局限于植物群落学,这个时期植物生理生态学,特别是植物种群生态的研究开始崛起。90 年代,宏观生态学如景观生态学和全球生态学的研究开始起步。因此,近 50 年的历史,研究得最有成效的要数中观生态学,即植物群落学、植物生理生态学、植物种群生态学,它们也是宏观生态学研究的基础。没有这个中观的实验生态学的基础,一切宏观生态学的研究也就成为空中楼阁。陆生植物的生态系统生态学在我国实际上没有真正开展起来,因为当前的生态系统生态学研究并没有把生态系统中的各个组成进行同步研究。微观生态学,如分子生态学仅仅 10 多年的历史,在国际上也尚未形成气候,尽管非常重要,由于研究条件限制,开展得很少。本书在中观生态层次上的研究是以西南为对象,四川为基地,紧跟国际生态学发展趋势,旨在缩小与国外研究水平的差距。这个成就比较充分地反映在本论文集,因而形成了本书的特色:

1. 研究领域广泛,不仅有中观层次的植物群落学、植物生理生态学和植物种群生态学的研究,而且还有生态系统、污染生态学等的内容。

2. 以亚热带常绿阔叶林及其优势种为主要对象。我国的常绿阔叶林是全球分布面积最大的,发育最为典型,横跨 10 个纬度以上,分布在约 250 余万平方公里的范围内,从而成为世界上罕见的植被类型。本书是以四川境内 32 万平方公里范围内的常绿阔叶林及其优势种为对象,因此是很有特色的。迄今为止,本书是对常绿阔叶乔木的生理生态和种群生态研究做得比较全面和深入的一本。如杨小波博士对《四川大头茶若干生态问题的研究》(钟章成,1995)一文指出:“他的成果是目前我国有关森林群落次生演替序列种群生理生态机理研究中具有一定代表性的成果,因为我国有关植物群落演替序列种群的生理生态机理研究还处于萌芽阶段”(杨小波:广东省黑石顶亚热带森林次生演替生理生态机理研究,博士论文,1996)。

3. 紧跟国际研究发展形势,开展前沿性研究工作。我们在全中国最早开展常绿阔叶林土壤种子库研究,林窗及其边缘效应研究,木本无性系种群生态学研究,木本种群的繁殖分配、繁殖效益以及繁殖策略的研究,木本种群的生殖生态研究以及乔木树种的构件理论和拟种群研究。这些工作操作难度大,研究成败的风险也大,因为研究对象是常绿乔木树种。

4. 尽量采用现代生态学的理论、技术和方法开展研究工作,推动了我国植物群落学研究深入发展。1988 年周纪伦教授对本书一组论文的综合评价,认为“在我国首次把现代植物生态理论体系在这个区域植被研究实践中全面地付诸实现,冲破了植被群落学研究局限于分类和地理的局面,开始对具体群落进行了以种群为对象的群落生态学研究,即尝试对群落种群的相互关系的各个方面,各个水平进行综合研究,这一转变具有深刻的学术意义,给我国植物群落

学注入了新的思想和动力,显示出强大的生机.一是反映了现代生态学新理论和新技术;二是已初步将现代生态学理论和技术在我国四川常绿阔叶林的实际工作中付诸实现;三是为我国常绿阔叶林生态学的研究与生产相结合开拓了前进道路”.这个评价令人高兴,因为我们的工作得到了同行专家的认可.

本论文集浸注着作者 30 多年来的辛勤工作.同时也感谢我的贤惠、忠厚、勤劳的妻子——李瑞智同志的鼎力相助.作者还要感谢论文集的合作者——我的研究生们,他们为本文集提供了部分合作的论文.校出版基金会为本书提供了二分之一的经费.在此一并致谢.

钟章成

1996-8

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