CForBio 2012工作进展

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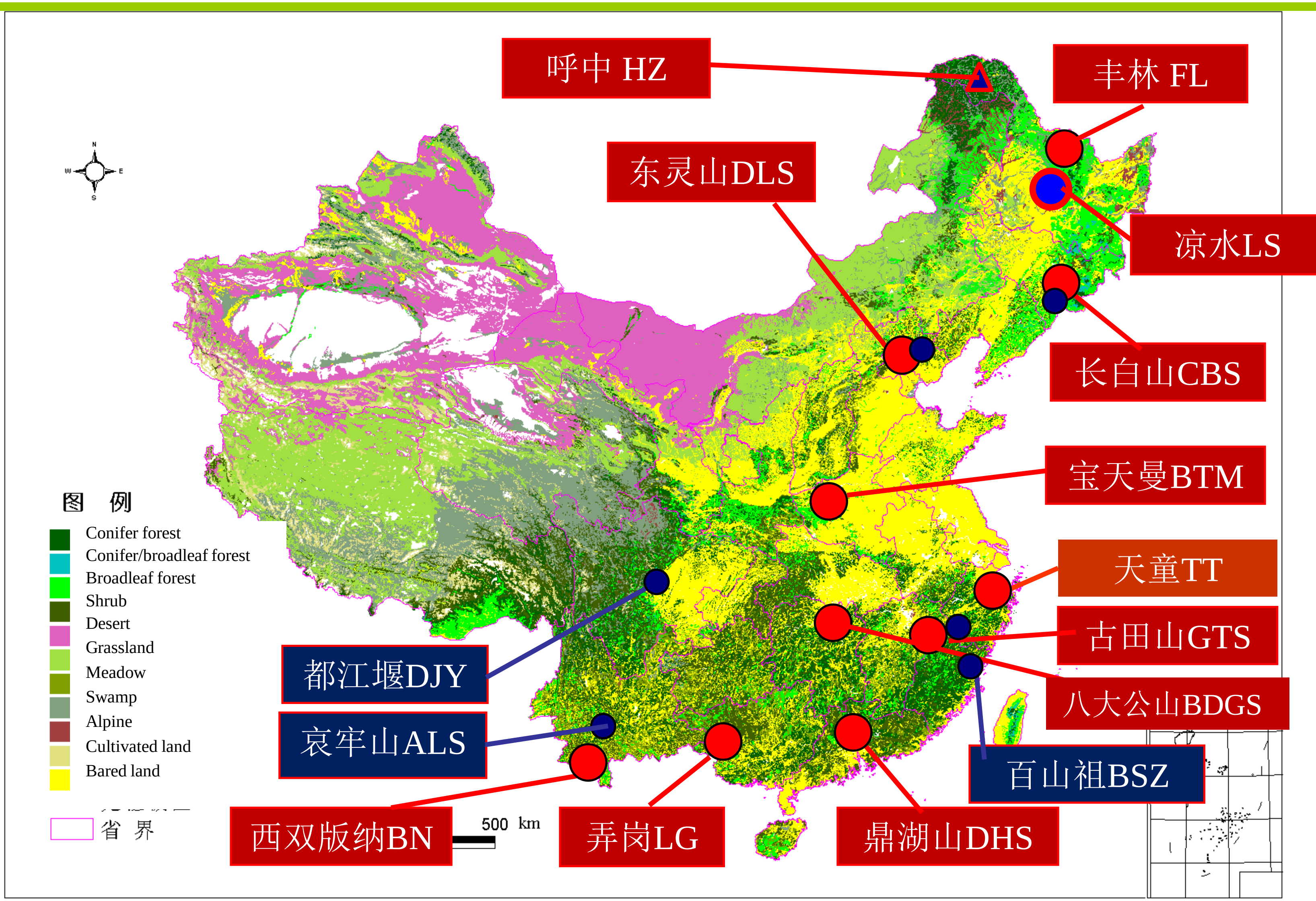
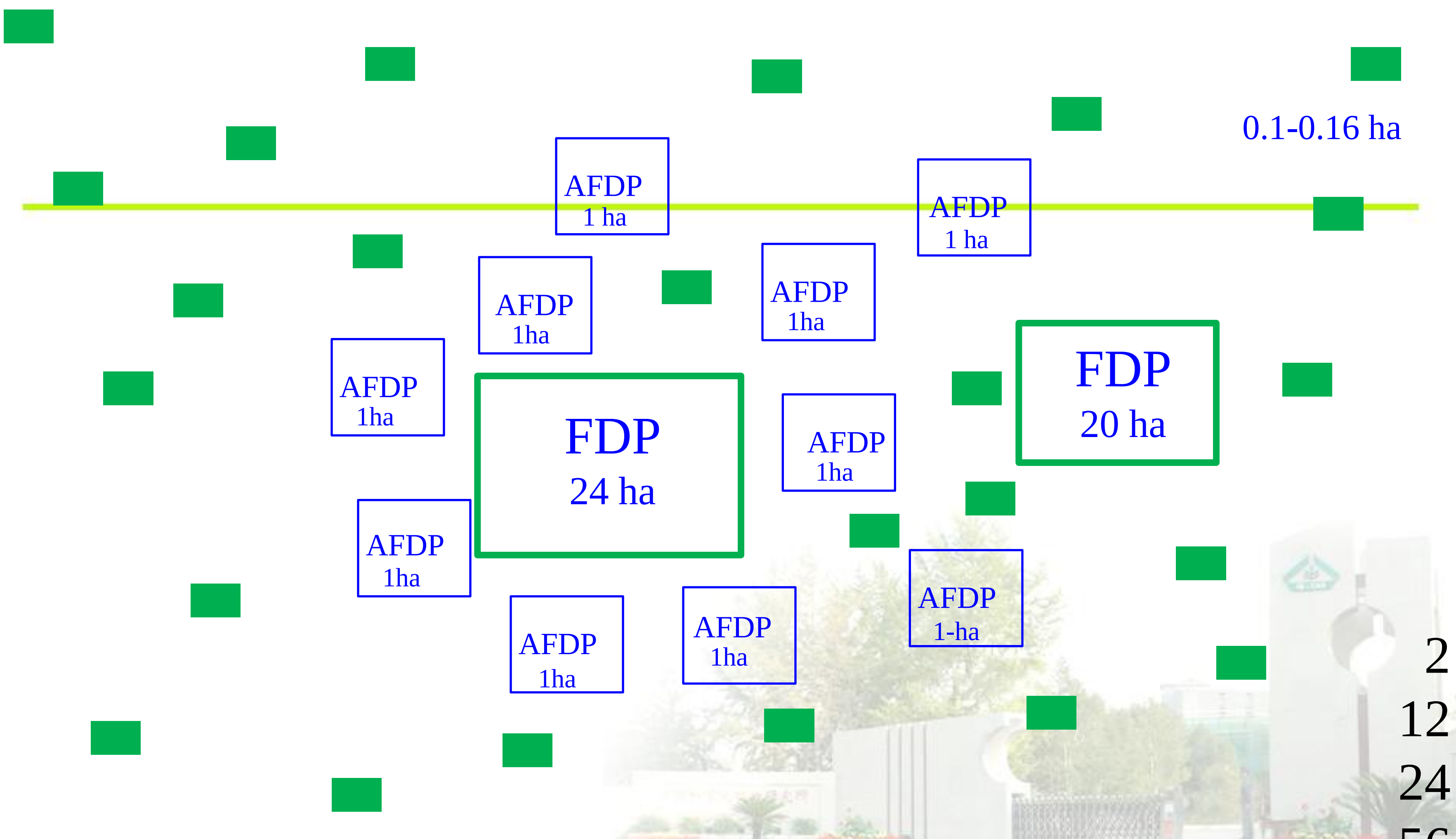
Annual Meeting of FDPs

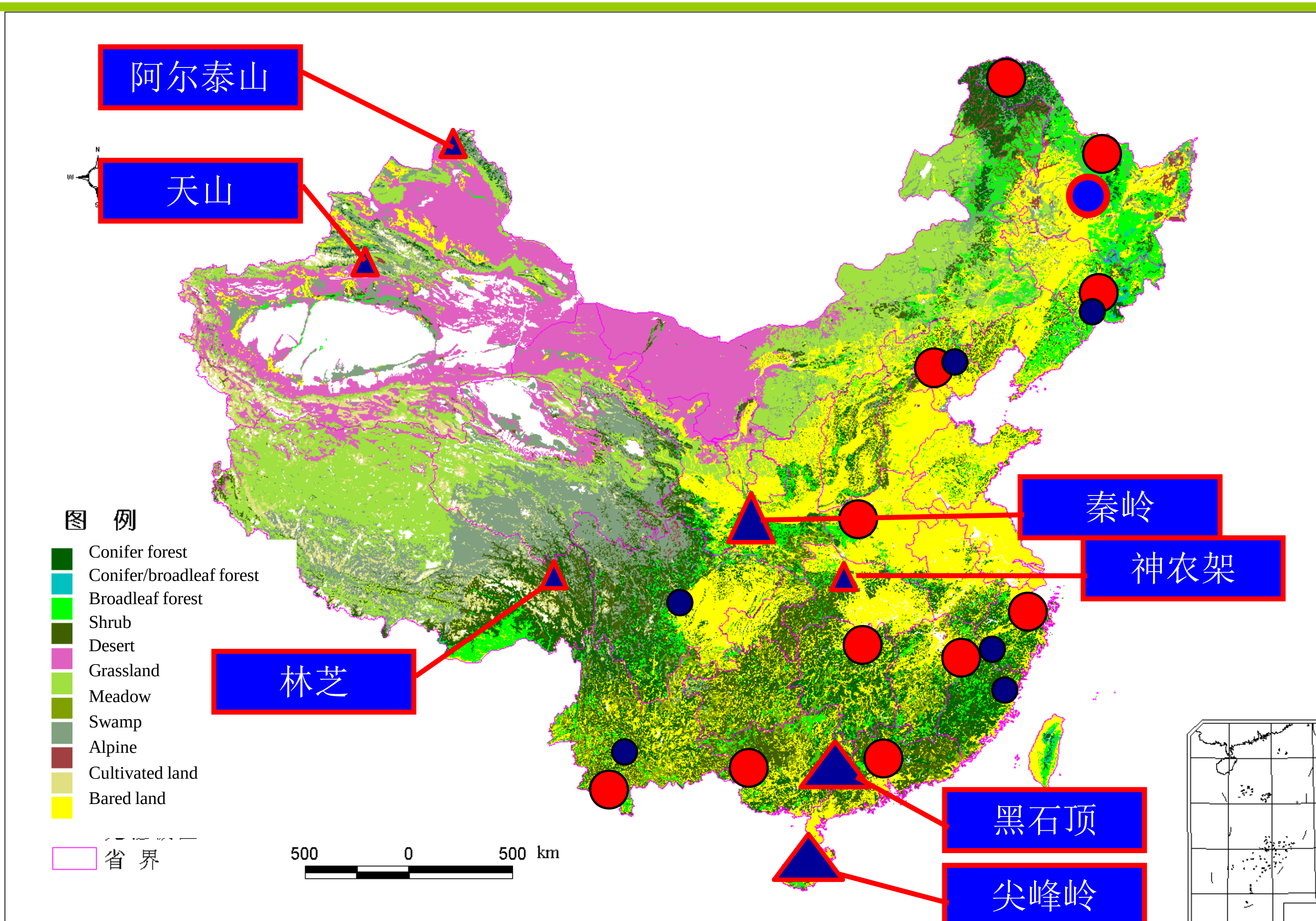
Chinese Forest Biodiversity Monitoring Network(CForBio)



浙江森林生物多样性监测体系



More FDPs for CForBio



发表的研究成果

- CForBio 宣传册
- 2011-2012 论文集
- 在国内外主流杂志发表39篇论文，其中SCI收录刊物发表28篇，中文刊物发表11篇；
- 重要刊物论文：**American Naturalist, Functional Ecology, Oecologia, Oikos, PLoS ONE** 等刊物15篇。

发表的研究成果

项目/年	2007	2008	2009	2010	2011	2012
非SCI论文数量	2	10	4	6	17	11
SCI论文数量	1	3	14	8	5	28
SCI-IF	1.99	5.94	37.24	32.16	17.62	81.49
Mean IF	1.99	1.98	2.66	4.02	3.52	2.91

发表的研究成果-1

Density dependence

1. Tiefeng Piao, Liza S. Comita, Guangze Jin* and Ji Hong Kim. Density dependence across multiple life stages in a temperate old-growth forest of northeast China. ***Oecologia***.
2. Xuejiao Bai, Simon A. Queenborough, Xugao Wang, Jian Zhang, Buhang Li, Zuoqiang Yuan, Dingliang Xing, Fei Lin, Ji Ye and Zhanqing Hao*. Effects of local biotic neighbors and habitat heterogeneity on tree and shrub seedling survival in an old-growth temperate forest. ***Oecologia***.
3. Xugao Wang, Liza S. Comita, Zhanqing Hao*, Stuart J. Davies, Ji Ye, Fei Lin and Zuoqiang Yuan. Local-scale drivers of tree survival in a temperate forest. ***PLoS ONE***. 7(2):e29469.

发表的研究成果-1

Density dependence

4. Zhengrong Luo, Xiangcheng Mi, Xiaorong Chen, Zhenlin Ye, and Bingyang Ding. Density dependence is not very prevalent in a heterogeneous subtropical forest. ***Oikos***, 121:1239-1250

5. Luxiang Lin, Lisa S. Comita, Zheng Zheng and Min Cao. Seasonal differentiation in density-dependent seedling survival in a tropical rainforest. ***Journal of Ecology***.100:905-914.

发表的研究成果-2

CForBio

Spatial patterns

6. Zuoqiang Yuan, Antonio Gazol, Xugao Wang, Dingliang Xing, Fei Lin, Xuejiao Bai, Yuqiang Zhao, Buhang Li and Zhanqing Hao*. What happens below the canopy? Direct and indirect influences of the dominant species on forest vertical layers. ***Oikos.***
7. Guoyu Lan, Stephan Getzin, Thorsten Wiegand, Yuehua Hu, Guishui Xie, Hua Zhu and Min Cao. Spatial Distribution and Interspecific Associations of Tree Species in a Tropical Seasonal Rain Forest of China. ***PLoS ONE***. 7(9):e46074
8. Yuehua Hu, Liqing Sha, F. Guillaume Blanchet, Jiaolin Zhang, Yong Tang, Guoyu Lan and Min Cao. Dominant species and dispersal limitation regulate tree species distributions in a 20-ha plot in Xishuangbanna, Southwest China. ***Oikos***. 121:952-960.

发表的研究成果-3

Functional traits

9. Xiaojuan Liu, Nathan G. Swenson, S. Joseph Wright, Liwen Zhang, Kai Song, Yanjun Du, Jinlong Zhang, Xiangcheng Mi, Haibao Ren and Keping Ma. Covariation in plant functional traits and soil fertility within two species-rich forests. ***PLoS ONE***. 7(4): e34767.
10. Xiaojuan Liu, Nathan Swenson, Jinlong Zhang and Keping Ma. The environment and space, not phylogeny, determine trait dispersion in a subtropical forest. ***Functional Ecology***.

发表的研究成果-4

Biodiversity and carbon

11. Dunmei Lin, Jiangshan Lai, Helene C. Muller-Landau, Xiangcheng Mi, Keping Ma. Topographic variation in aboveground biomass in a subtropical evergreen broad-leaved forest in China. **PLoS ONE**.

发表的研究成果-5

Community genetics

12. Zengfeng Wang, Juyu Lian, Guomin Huang, Wanhui Ye, Honglin Cao and Zhangmin Wang. 2012. Genetic groups in the common plant species *Castanopsis chinensis* and their associations with topographic habitats. ***Oikos.***

发表的研究成果-6

Eco-physiology, LAI

13. Zhili Liu, Guangze Jin* and Yujiao Qi. Estimate of leaf area Index in an old-growth mixed broadleaved-Korean pine forest in northeastern China. ***PLoS ONE***. 7(3), e32155.
14. Miao Wang *, Shuai Shi, Fei Lin, Zhanqing Hao, Ping Jiang and Guanhua Dai. Effects of soil water and nitrogen on growth and photosynthetic response of manchurian ash (*Fraxinus mandshurica*) seedlings in northeastern China. ***PLoS ONE***. 7(2): e30754.

发表的研究成果-7

Community Phylogeny

The Contribution of Rare Species to Community Phylogenetic Diversity across a Global Network of Forest Plots

Xiangcheng Mi,[1] Nathan G. Swenson,[2] Renato Valencia,[3] W. John Kress,[4] David L. Erickson,[4] Álvaro J. Pérez,[3] Haibao Ren,[1] Sheng-Hsin Su,[5] Nimal Gunatilleke,[6] Savi Gunatilleke,[6] Zhanqing Hao,[7] Wanhui Ye,[8] Min Cao,[9] H. S. Suresh,[10] H. S. Dattaraja,[10] R. Sukumar,[10] and Keping Ma[1,*]

1. State Key Laboratory of Vegetation and Environmental Change, Institute of Botany, Chinese Academy of Sciences, 20 Nanxincun, Xiangshan, Beijing 100093; 2. Department of Plant Biology, Michigan State University, East Lansing, Michigan 48824; 3. Laboratorio de Ecología de Plantas, Escuela de Ciencias Biológicas, Pontificia Universidad Católica del Ecuador, Apartado 17-01-2184, Quito, Ecuador; 4. Department of Botany, National Museum of Natural History, Smithsonian Institution, Washington, DC 20013; 5. Taiwan Forestry Research Institute, Taipei 10066; 6. Department of Botany, Faculty of Science, University of Peradeniya, Peradeniya 20400, Sri Lanka; 7. Institute of Applied Ecology, Chinese Academy of Sciences, Shenyang 110016; 8. South China Botanical Garden, Chinese Academy of Sciences, Guangzhou 510650; 9. Key Laboratory of Tropical Forest Ecology, Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences, Kunming 650223; 10. Center for Ecological Sciences, Indian Institute of Science, Bangalore 560012, India

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Online enhancements: appendixes, zip file. *Dryad data:* http://dx.doi.org/10.5061/dryad.p4n8rg64

ABSTRACT: Niche differentiation has been proposed as an explanation for rarity in species assemblages. To test this hypothesis requires quantifying the ecological similarity of species. This similarity can potentially be estimated by using phylogenetic relatedness. In this study, we predicted that if niche differentiation does explain the co-occurrence of rare and common species, then rare species should contribute greatly to the overall community phylogenetic diversity (PD), abundance will have phylogenetic signal, and common and rare species will be phylogenetically dissimilar. We tested these predictions by developing a novel method that integrates species rank abundance distributions with phylogenetic trees and trend analyses, to examine the relative contribution of individual species to the overall community PD. We then supplement this approach with

Introduction

A central goal in community ecology is to determine the mechanisms underlying the relative abundances of species. Addressing this question is particularly challenging and interesting in diverse communities where a large proportion of the species are relatively rare. Thus, basic research into species abundances, particularly in diverse communities, requires a consideration of the forces underlying species rarity. Two opposing families of hypotheses have been proposed to explain rarity in species assemblages. One family, which focuses on niche differentiation, stresses the importance of specialization and spatiotemporal re-

ECOLOGY

The importance of being rare

Uncovering the contribution of rare species to ecosystems is crucial to predicting the impacts of biodiversity loss. It seems that these species can be ecologically very different from their common relatives, but only in some cases.

KEVIN J. GASTON

Rare species are not invariably threatened with imminent extinction. However, those species that are threatened are almost invariably rare. The recent and projected future high rates of local, regional and global species loss have focused renewed attention on the need to understand the role of rare species in the structure and function of ecological assemblages. Writing in *American Naturalist*, Mi *et al.*[1] test the simple and fundamental question that lies at the heart of this understanding: namely, whether the rare species within a given site are ecologically dissimilar from the common ones.

Arguably, one can distinguish two prevailing paradigms in community ecology. What might be termed the 'rarity-richness' paradigm focuses on the notion that a crucial difference in the structure and function of broadly similar ecological assemblages (such as the plants, birds or mammals that inhabit different grass-

of these species will have few individuals, the number of rare species that are present[2,3]. In this paradigm, rare species are seen as often having key roles in the structure and function of the assemblage, such as providing ecosystem goods and services, because they are ecologically different from common species. As a result, models of assemblage structure that are based on the concept of niche differentiation — an ecological process in which different species partition available resources between one another in space and/or time — are closely associated with this paradigm.

The second might be termed the 'commonness-dominance' paradigm. Here, attention is focused on the common species, rather than the rare ones, on the grounds that common species account for the vast majority of individuals, biomass and energy use in an assemblage, and therefore many of its essential characteristics[4]. In this paradigm, species richness, and the rare species that make up much of it, are considered less important than the composi-

influence — commonness is rare. Consistent with this paradigm are neutral models of assemblage structure[5], in which individuals of different species are seen as being effectively ecologically equivalent. These models also consider the process that determines which species become common and dominate assemblages to be essentially stochastic, or to have a strong stochastic component.

Only in their strictest form are these paradigms necessarily mutually exclusive. More usefully, they can be seen as providing complementary viewpoints that serve to shine a light on different components of assemblages. Indeed, many researchers find it useful to embed their work in one or other paradigm. Mi and colleagues effectively ask which paradigm is the more relevant.

Determining the ecological similarity of rare and common species is not straightforward, particularly when large numbers of species are involved. In principle, this similarity can be measured on numerous axes, including multiple components of morphology, physiology, life history and behaviour, but it is often not obvious a priori which axes might be the most important. Mi *et al.* take a short cut. They make the reasonable assumption that more closely related species (those that are genetically more similar) are on average more likely to share important traits, so that one can use the level of relatedness as a proxy for ecological similarity.

The authors used data from study plots of forest dynamics for their analysis. These plots, in which all individual trees (above a given threshold size) are painstakingly

CTFS 生物多样性多维度研讨会

2012年7月16日－8月3日，CForBio 14名研究人员在位于西雅图的华盛顿大学参加了Dimensions of Biodiversity Workshop。

7月31日，来自中国、美国、意大利、斯里兰卡、巴拿马、喀麦隆等国家和地区的53位学员考察了位于华盛顿州的Mount Baker-Snoqualmie国家森林公园。

CTFS 生物多样性多维度研讨会

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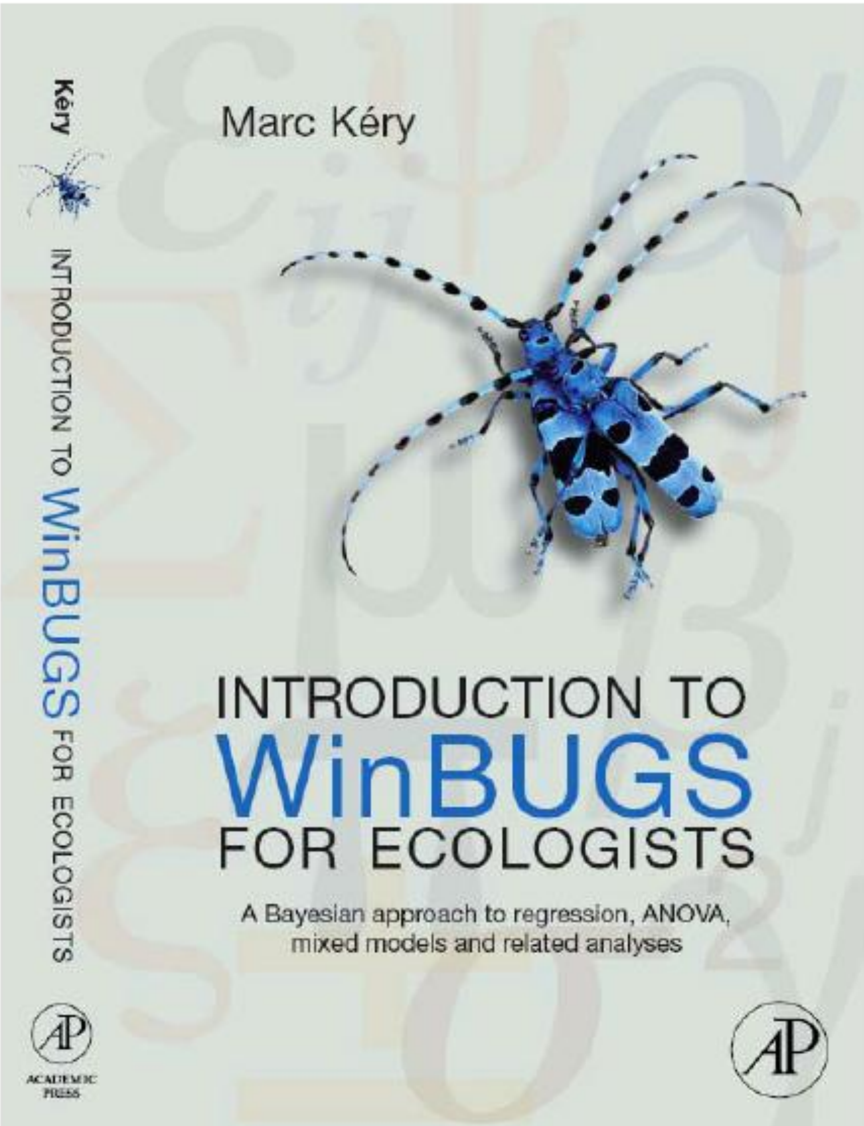
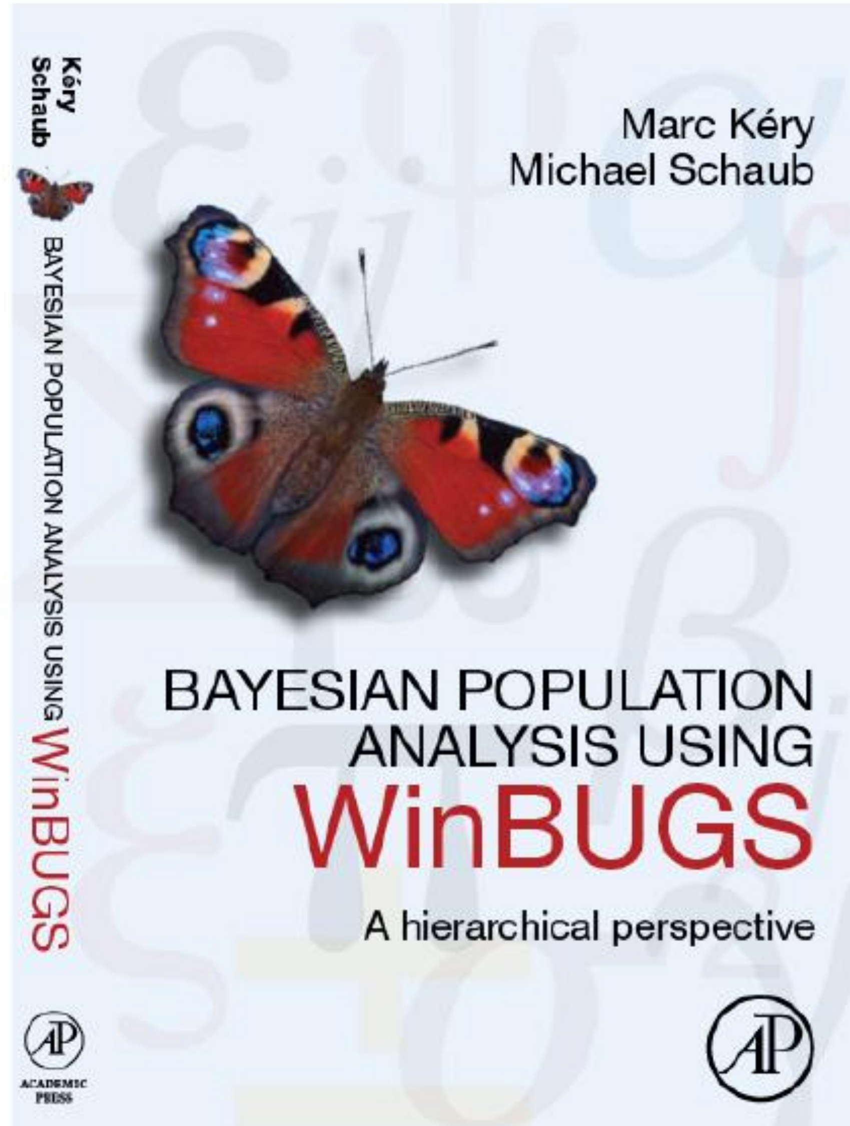
培训班包括五个主题：植物邻居关系、种子和幼苗更新、植物生长和死亡、森林生物量和碳、物种空间分布。


Kéry
INTRODUCTION TO WinBUGS FOR ECOLOGISTS
Marc Kéry
INTRODUCTION TO
WinBUGS
FOR ECOLOGISTS
A Bayesian approach to regression, ANOVA,
mixed models and related analyses
ACADEMIC PRESS


Kéry
Schaub
BAYESIAN POPULATION ANALYSIS USING WinBUGS
Marc Kéry
Michael Schaub
BAYESIAN POPULATION
ANALYSIS USING
WinBUGS
A hierarchical perspective
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培训与交流

2012年8月5日-10日，美国生态学会第97届年会在波特兰举行，CTFS在此次年会上组织了口头报告专题“Global comparisions in Forests Dynamics: Results From Permanent Plots”，沈阳应用生态研究所4人参加了此次年会。其中，王绪高研究员和博士生邢丁亮分别做了会议专题报告。

培训与交流

宝天曼研讨班

2012年9月2-5日

75人来自20多个省

培训与交流

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培训与交流


中国－东盟环境合作论坛
ASEAN–CHINA ENVIRONMENTAL COOPERATION FORUM
2012
生物多样性与区域绿色发展

培训与交流


Legend
CForBio
SÁCH ĐỎ
VIỆT NAM
KOREAN
RED
DATA
BOOK
Keping
MA

数据共享

- 第一批建立的4个样地（长白山、古田山、鼎湖山和西双版纳）正式实施数据共享政策

申请到的研究项目

- 中国科学院生物多样性监测网络建设项目（70万 + 50万）
- 马克平 整合系统发育、功能形状和转录组学区分森林群落生物多样性驱动因素
- 杜彦君 生态位构建和扩散构建在塑造亚热带幼苗群落中的相对重要性
- 祝燕 宝天曼暖温带森林局域稀有种对密度制约的反应及物种共存研究
- 赖江山 常绿阔叶林物种多样性对土壤磷养分可利用性的影响
- 陈磊 谱系相关的种间与种内相互作用对亚热带森林群落物种共存的影响
- 马克平 森林固碳对气候变化响应的群落学机制：大型森林动态样地途径
- 。。。。。。

天童会议讨论到的问题

1. 物种共存/空间格局形成与变化机制(孙义方)；
2. 种面积关系（于明坚）
3. 谱系生物多样性（叶万辉/米湘成）
4. 萌枝及其对群落构建的作用（王希华/唐勇）
5. 功能性状（林宜静/唐勇）
6. 稀有种（任海保）
7. 繁殖物候及其形成机制（陈毓昀）
8. 固碳（马克平/江）
9. 生态化学计量学（郝占庆）


2010国际生物多样性年
生物多样性是生命
生物多样性就是我们的生命
BIODIVERSITY IS LIFE BIODIVERSITY IS OUR LIFE
2010国际生物多样性年中国国家委员会
http://2010.biodiv.gov.cn

Thanks