

华南地图 map of South China



- | | |
|----------------------------|-----------|
| 1. Chebaling | 车八岭 |
| 2. Luokeng | 罗坑 |
| 3. Beifengshan (Gudoushan) | 北峰山 (古斗山) |
| 4. Heishiding | 黑石顶 |
| 5. Dawuling | 大雾岭 |
| 6. Dayaoshan | 大瑶山 |
| 7. Longhushan | 龙虎山 |
| 8. Chongzuo | 崇左 |
| 9. Gulongshan | 古龙山 |
| 10. Cenwanglaoshan | 岑王老山 |
| 11. Qingpilin | 青皮林 |
| 12. Limushan | 黎母山 |
| 13. Lumuwan | 鹿母湾 |



总编辑 Editor-in-chief:
费乐思 John Fellowes

编委 Editors:
周锦超、陈肇乐、吴狄姬
Lawrence Chau, Bosco Chan, Norris Ng

翻译 Translator:
林芷薇 Ela Lam

联络地址 Correspondence address:
香港新界大埔林锦公路嘉道理农场暨植物园, 华南生物多样性研究队
South China Biodiversity Team, Kadoorie Farm & Botanic Garden,
Lam Kam Road, Tai Po, New Territories, Hong Kong, China.



以再造纸和大豆油墨印制
Printed on recycled paper with vegetable-based ink
ISSN 1680 - 0494

森林脉搏 Living Forests

第五期 Issue No. 5



本期内容
Inside this issue



二零零三年三月 March 2003

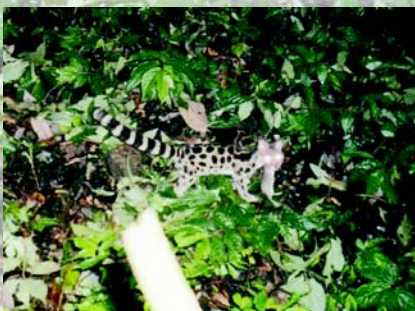
- 广西大瑶山鱼类研究整理
A compilation of fish records from Dayaoshan, Guangxi
- 嘉道理农场暨植物园快速生物多样性调查于广西东部大瑶山国家级自然保护区的淡水鱼类记录
Notes on freshwater fishes recorded in Dayaoshan National Nature Reserve, East Guangxi during KFBG rapid biodiversity surveys

- 华南生物多样性研究队使用红外线自动照相机的初步结果
Preliminary results of using infrared auto-trigger camera by the South China Biodiversity Team
- 已成为广东省濒危的两栖动物(包括国家公布的物种)
Endangered amphibians and non-marine turtles in Guangdong

嘉道理农场暨植物园简介 Introduction to Kadoorie Farm & Botanic Garden (KFBG)

嘉道理农场暨植物园是香港的一所慈善机构，早在 1951 年，嘉道理家族的两兄弟，罗兰士与贺理士，创办本园以推行农业辅助计划，帮助从大陆移民来的贫困农户自力更生。该计划帮助了超过三十万名香港农民改善生活，其后在尼泊尔也有开展类似的计划。两兄弟于九十年代先后辞世，但其家族传统仍延续下来。嘉道理慈善基金会为中国和尼泊尔境内服务贫困社群的计划提供资助，而嘉道理农场暨植物园则因应香港社会的转型，现已建成为一所自然教育与保育中心，并根据 1995 年通过的香港法例成为一家公益事业公司。我们的任务是“提高人们关注我们与自然环境的关系”。本园现推行的计划有野生动植物保育、可持续农业和环境教育等等。

Kadoorie Farm & Botanic Garden (KFBG) is a charity based in Hong Kong, with a tradition of agricultural aid dating back to 1951, when the two brothers Lawrence and Horace Kadoorie began a self-help scheme for poor immigrant farmers from China. This scheme was to help over 300,000 Hong Kong farmers to achieve a good standard of living; similar poverty relief work was undertaken in Nepal. Both brothers died in 1990s, but the family's tradition continues. The Kadoorie Charitable Foundations fund projects that benefit disadvantaged communities throughout China and Nepal. KFBG, in response to changing priorities in Hong Kong, has become a centre for environmental education and conservation, enshrined by a Government Ordinance in 1995 as a public corporation. The current Mission Statement of the KFBG is "TO INCREASE THE AWARENESS OF OUR RELATIONSHIP WITH THE ENVIRONMENT". KFBG now has thriving programmes in wild plant and animal conservation, sustainable agriculture, environmental education and other areas.



斑林狸 *Prionodon pardicolor*
详情见本刊第13-19页。Please see P13-19 for details.

于《森林脉搏》内刊登之文章，其内容纯属作者之个人意见，与本园立场无关。

The articles of *Living Forests* include personal views of the authors which do not necessarily represent those of the editors or of KFBG.

目录 Contents

嘉道理农场暨植物园简介 Introduction to Kadoorie Farm & Botanic Garden	P.1
编辑的话 Editorial	P.2
资讯速递 Notices	P.3
二零零二年具保育价值的 野生动植物纪录 Wildlife Whereabouts-some recent records of conservation importance 2002	P.13
广东古斗山自然保护区的 蕨类植物 The Ferns of Gudoushan Nature Reserve, Guangdong	P.20
生态旅游与环境教育 Ecotourism and Environmental Education	P.24
广西大瑶山鱼类研究整理 A compilation of fish records from Dayaoshan, Guangxi	P.26
嘉道理农场暨植物园 快速生物多样性调查 于广西东部大瑶山国家级 自然保护区的淡水鱼类记录 Notes on freshwater fishes recorded in Dayaoshan National Nature Reserve, East Guangxi during KFBG rapid biodiversity surveys	P.30
华南生物多样性研究队使用 红外线自动照相机的初步结果 Preliminary results of using infrared auto-trigger camera by the South China Biodiversity Team	P.34
广东省濒危的两栖动物 (包括国家公布的物种) Endangered amphibians in Guangdong(including the species protected by the state)	P.36
广东省濒危的陆栖龟鳖类 (包括国家公布的物种) Endangered non- marine turtles in Guangdong (including the species protected by the state)	P.38
1998 至 2000 年于海南、广西 进行之快速生物多样性调查 摘要 Summary of findings from some rapid biodiversity assessments in Hainan and Guangxi, 1998-2000	P.40
新闻焦点 In the News	P.55
近期刊印的出版物 A selection of recent publications	P.60
切莫插手『自然保护区』 Hands off the "Nature Reserves"	P.63

编辑的话

Editorial

最新一期的《森林脉搏》搜罗了各地资讯，内容包罗万有。国际性的保育网络在亚洲日益扩大，保育组织的合作亦日趋紧密，“资讯速递”将为大家报导一些新发展项目的动态。这期亦刊登本园在华南地区进行快速生物多样性调查的最新发现，并加插于野外拍摄的哺乳类图片给读者欣赏。当然，少不了的是动植物专题报导的份儿：华南鹭鸟林所在何方？远赴广西东部大瑶山的调查——这个自 1930 年代起便受科学家重视的山区，鱼类资源的状况如何？而广东具保育价值的蕨类植物，两栖类及龟鳖类又是那几种？答案将在今期《森林脉搏》自有分晓，此外，尚有不少篇幅是讨论自然保护区的旅客及在区内推行环境教育的可行性，生态旅游是开发保护区的方法吗？然而，又应如何管理？

本园现进行策略研讨，务求以最佳策略为中国的自然保育事业献出最大力量。我们期望在不久的将来开展新项目，并热切期待我们与伙伴组织的合作关系能不断加强、扩展。这亦意味著《森林脉搏》或许会面临一些改动，请与我们分享你的观点与看法，帮助我们与读者一同保护中国的生物遗产。

Welcome to the latest issue of *Living Forests*, as ever a mixed bag. International conservation networks and cooperation continue to grow in Asia, and some new developments are mentioned in the notices section. Some of the latest findings of KFBG's South China surveys are inside, with pictures of real wild mammals (yes, they're still out there). Other questions are asked of our flora and fauna: where are South China's egrettries? What have we learned of the fishes of east Guangxi's great Dayaoshan range, site of important explorations since the 1930s? What are the ferns, amphibians and chelonians of conservation concern in Guangdong? A couple of articles discuss visitors to nature reserves, and the potential for education. Is eco-tourism the answer? If so, what is the question??

As an organization KFBG has been doing some strategic thinking about how it can best contribute to nature conservation in China. We expect to be launching some new projects in the near future, and look forward to strengthening and expanding our partnerships. This means *Living Forests* may go through some changes too – please feel free to share your views on how it does, and could, play a better role in helping you, the reader involved in conserving China's living heritage.

参与保育会议后感

2002年夏季，有多项国际生物会议于欧亚召开，会上掀起世界各地（包括中国）的森林生物多样性保育策略的讨论。与会花絮及精彩部份节录如下：

紧随欧洲热带森林研究网络(European Tropical Forest Research Network)(www.etfrn.org)主办的国际性网上会议，5月伦敦举行了一个政策对参与式生物多样性评估(Participatory Biodiversity Assessment)影响的研习班，而不同个案分析所得的结论都大同小异。菲律宾的个案便是一例，当地社区关注团体定期会根据狩猎者的野外笔记与政府代表讨论，继而自我约束，杜绝一切有违可持续保育的行为 (*Biodiversity and Conservation* 9: 1671-1705)。具重要文化价值的旗舰物种：如在婆罗洲常遭捕捞作食用，但生境易受破坏的野结鱼(*Tor tambra*)正是社区需要关注及参与的焦点所在。可是官员对低技术方法的偏见一直是参与式保育工作的一大障碍。所以中阶科技发展小组(The Intermediate Technology Development Group) (www.itdg.org) 指出能力建构的其中一个要点便是要「摒弃课本知识」，劝戒来自城市的戒官员必须尊重乡村居民的识见与智慧。

美国保育生物学会(The Society for Conservation Biology)于7月首次于欧洲召开会议，地点是位于英国的坎特百雷(Canterbury)，会上设有不同主题的交流会供世界各地人士参与。非洲境内的动物贸易危机便是其中一个热门论题，当地耗用森林动物资源作肉食在近年不断增加。会上探讨了森林生物与渔业在管理上的相似之处，并强调设立禁捕区在恢复耗损资源方面取得的成功，期望森林管理人员可引以为鉴，多加仿效。

过度损耗的问题并不单止于兽肉交易，正如 John Lawton 的演讲辞所言，现今约有一半的植物生产量是直接送到人们胃里去的——陆上的有40%、海里的有25-30%、淡水的则有60%，然而该比例仍有持续上升之势。生境现今所承受的压力大多来自发达国家惯性过度耗用资源及滥用国际贸易协议以维持这种不公平的资源使用模式。John Lawton 呼吁各生物学家与发展单位、律师、经济学者与政治家联合起来，把生物学的概念融入其他范畴。

「现实世界中的自然保育」环节中的讯息在会议尾声引来极大的回响。因保育工作和地区与国家的政

策及优先次序互不衔接，在场的资深保育工作者描述了他们所付出的努力是如何因而遭到白费。

社会昆虫研究国际联盟(The International Union for the Study of Social Insects)在7、8月期间于日本札幌召开的会议中，不少与会人士表示对现时亚洲昆虫分类深表忧虑，因这样会大大限制陆栖生物多样性的有效管理。不过，教人兴奋的消息是国际自然保育联盟(IUCN)已发展了网上昆虫分类支援工具，网上还备有大量历史文献资料可供参考 (http://research.amnh.org/entomology/social_insects)。与此同时，亚洲蚁类国际研究网络(ANet)使从事该方面的专家得以汇聚及加强联系，而泰国及沙巴两地经已得到显著的成绩。

2002年8月在北京召开的国际灵长类会议中讨论的议题很多样化，但仍以保育为最首要的讨论事项，并以备受忽略的濒危亚洲长臂猿为最主要的讨论议题。国际自然保育联盟灵长类专家小组近日列出全世界25种最濒危的灵长类动物名录(http://www.conservation.org/xp/CIWEB/newsroom/press_releases)，当中不少来自越南及中国两地，这显示保育危机的核心已由亚马逊地区转移至亚洲，城市发展的压力令这地区的森林及其野生动植物种群危机重重。中国的海南长臂猿及白头叶猴分别处于名录的前列位置(近日发现两者分别为极度濒危的越南黑冠长臂猿及金头叶猴的同种动物)。各个非政府组织促请要进行准确可靠的调查，以策划效果理想的保育行动。至于白头叶猴方面，保育行动或可根据北京大学在崇左成功开展当地社会参与的保育工作，作为基础，加强保护力度。

为期一周的国际鸟类会议亦紧接著灵长类会议之后在北京召开。鸟类国际(Birdlife International)呼吁各人加强全球鸟类专家及保育工作者的网络联系，详情将在下一期的《森林脉搏》再作跟进。国际自然保育联盟的鹭鸟专家小组亦同时发表了刚草拟的行动计划，总结保育全球水鸟须予落实的行动并诚邀各方作出回应。鸡形目专家小组(包括雉鸡、鹌鹑等)在其负责的环节中，汇报了行动计划的最新进展，并介绍了国家林业局的全国保护区建设及重点野生动植物保护工程。在场人士对雉鸡被选为保育目标之一均表示欢迎，唯某些代表却担心大部份经费会应用在“建设”保护区之上，而非改善个别的保育行动。

FROM THE CONSERVATION BIOLOGISTS' CONFERENCE CIRCUIT

Over the summer of 2002 a number of international biological meetings took place in Europe and Asia. Much of the discussion had implications for conserving forest biodiversity the world over, including China. Some highlights are reported here.

In May a workshop on policy implications of participatory biodiversity assessment was held in London. It followed an international e-conference, organised by the European Tropical Forest Research Network (www.etfrn.org). There was much overlap in conclusions from different case studies. Typical was a Philippines example showing that regular discussions among community focus groups and with government representatives, with hunters' field notes as a basis, fed back to self-regulation of unsustainable behaviour (*Biodiversity and Conservation* 9: 1671-1705). Culturally-important flagship species (such as the ecologically sensitive and favoured food fish *Tor tambra* in Borneo) were a helpful focus for community involvement. A recurring obstacle was the suspicion among officials for low-tech approaches. The Intermediate Technology Development Group (www.itdg.org) noted one key aspect of capacity building was 'de-schooling', persuading urban officials to respect information from rural people.

In July the Society for Conservation Biology held a meeting in Canterbury, England, its first in Europe. The congress involved many parallel sessions, with participants from all over the world. One topical theme was the bushmeat crisis in Africa, where consumption of forest animals has ballooned in recent years. A session explored parallels between forest wildlife and fisheries, and highlighted the success of no-take areas in restoring depleted stocks. The no-take approach has applications in forests worldwide.

Overconsumption was recognised as a problem broader than bushmeat. As John Lawton pointed out in his keynote address, around half of all plant production – 40% on land, 25-30% in the sea, and 60% in freshwater – is now channelled into human

stomachs, and the proportion is still rising. Much of the resulting pressure on habitats comes from the excessive habits of the developed world, and the abuse of international trade agreements to maintain this imbalance in consumption. He called on biologists to link up with development agencies, lawyers, economists and politicians, to integrate biology into other fields.

This linkage message was echoed in a closing session, Conservation in the Real World. Veteran conservationists described how effort had been wasted through the failure to connect with regional and national policies and priorities.

At the July-August congress of the International Union for the Study of Social Insects, in Sapporo, Japan, there was gloom about the state of insect taxonomy in Asia, limiting effective management for terrestrial biodiversity. But some brighter stories emerged. IUCN Social Insects Specialist Group members have now developed web-based taxonomic-support tools, including the availability of much historic literature on the Internet (http://research.amnh.org/entomology/social_insects). Meanwhile ant specialists throughout Asia have been linked and strengthened by ANeT, the International Network for the Study of Asian Ants, with particular success in Thailand and Sabah.

In August 2002 the International Primatological Society convened in Beijing. Contributions were varied, but conservation was top of the agenda. Gibbons featured prominently, as the most neglected and most endangered apes. The IUCN Primate Specialists Group compiled a revised list of the 25 most endangered primates in the world (http://www.conservation.org/xp/CIWEB/newsroom/press_releases). Many were from Vietnam and China, reflecting a shift in the core of the conservation crisis from Amazonia to Asia, as regional forests and their wildlife populations have buckled under development pressure. Near the top of the list were China's Hainan Gibbon and White-headed Langur (both recently found to be conspecific with critically endangered counterparts in Vietnam – *Nomascus* (cf. *nasutus*) sp. and *Trachypithecus*

poliocephalus respectively). NGOs pledged to help with reliable surveys, leading to focused conservation effort. For White-headed Langur this effort might build on Beijing University's successful involvement of the local community in conservation at Chongzuo.

The following week the International Ornithological Congress also met in Beijing. BirdLife International called for better links between global specialist networks, and regional networks of conservationists; this will be followed up in a forthcoming contribution to *Living Forests*. The IUCN Heron Specialists Group unveiled a draft Action Plan, summarising actions needed to conserve these water birds worldwide, and inviting feedback. The Galliform (pheasants, partridges etc.) Group also held a session, in which progress on the Galliform Action Plan was updated. Details of the State Forestry Administration's national wildlife macro-plan were revealed, as pheasants have been selected as one of the target groups. The plan was welcomed, though some delegates feared much of the budget of the macro-plan would be spent on further Nature Reserve "construction", rather than improving specific conservation practices.

John Fellowes (KFBG)

亚洲地区的保育事业注入新血

保育生物学会 (The Society for Conservation Biology) 是国际上唯一专注于发掘科技以保育维持及修复地球上的各种生物 (包括物种本身、其生态及进化的过程, 以至特定及整个环境等) 的非牟利专业团体。在保育界享负盛名的刊物《*Conservation Biology*》(保育生物学) 也是由本会编印出版的。

两年前, 该会董事局通过成立 7 个分部: 海洋分部、非洲分部、亚洲分部、澳大利亚 / 纽西兰 / 太平洋群岛分部、欧洲分部、北美分部, 以及中南美洲分部。直至现时为止, 亚洲分部仍在筹组当中, 去年 7 月在英格兰坎特百雷 (Canterbury) 举行的第 16 届保育生物学会会议中,

统筹了由 18 人组成的专责委员会, 促成亚洲分部的成立。一般而言, 各分部最少需要 100 名会员的参与才能成立。现时, 亚洲分部的会员已超过 110 名, 并开始筹备选举工作人员, 可是, 我们仍需要更多会员的支持以投入更多资源在亚洲。

本会将给予来自发展中国家的新会员特别优待, 以优惠价美金 \$25 便可订阅本会的电子刊物及浏览昔日存档 (列印刊物亦可获得折扣优惠)。欲索取更多资料, 获取电子刊物样本或透过网上申请入会, 请即登入: www.conservationbiology.org 或电邮至 Asia@conbio.org 联络本会亚洲分部委员。欲知详情, 请浏览 www.conbio.org/SCB/Activities/Sections/。

A BOOST FOR CONSERVATION BIOLOGY IN ASIA

The Society for Conservation Biology (SCB) is the only nonprofit international professional organization dedicated to developing the scientific and technical means for the protection, maintenance, and restoration of life on this planet – its species, its ecological and evolutionary processes, and its particular and total environment. The Society also publishes the leading journal of conservation worldwide – "*Conservation Biology*".

Two years back, the Board of Governors of SCB approved a process for the formation of seven sections, one for the marine realm and one each for Africa; Asia; Australia, New Zealand, and Pacific Islands; Europe; North America; and Neotropical and Central/ South America. As of now, the Asia Section remains to be established. During the 16th Annual SCB Conference last July in Canterbury, England, a steering committee of 18 people was formed to discuss the formation of an Asia Section of the Society for Conservation Biology. To activate a section, SCB requires at least 100 members. The Asia Section now has well over 110 members and is currently organizing elections of officers. However, we still need more members for greater participation.

SCB is offering membership for 2003 at highly

discounted rates for people in developing countries: only US\$25 for electronic access to the journal and its archives (paper subscriptions are also discounted). At their website, www.conservationbiology.org, you can learn more details, see a sample issue of Conservation Biology electronically, and enroll in SCB via the Internet. You may communicate with the Asia Section Steering Committee through Asia@conbio.org. For information about the Society's current efforts to form sections in Asia see: www.conbio.org/SCB/Activities/Sections/

亚太森林复修网络 (APFReN) 的成立

本人刚出席 2002 年 10 月初于马来西亚举行的森林复修会议，希望藉此向《森林脉搏》的读者介绍亚太区一个关于森林复修工作的网络。

时至今日，过往覆盖亚太区的原始森林已遭大肆砍伐或改作其他的土地用途，大部份剩馀的森林仍受著不同程度的干扰，复修退化森林已开始成为区内的一项优先工作。有见及此，联合国食物及农业组织 (FAO) 辖下的亚太林业研究支援项目 (FORSPA) 与马来西亚林业研究所 (FRIM) 便携手创立亚太森林复修网络 (APFReN)，藉此推动科技转移，促进区内国家从集体所得的经验之中学习的机会。

得到 FORSPA 的大力支持及推动，APFReN 目前的首要任务是于区内建立一个大型示范地点 (约 100 公顷) 网络，一方面示范落实森林复修的工作，另一方面将其发展成为信息中心，促进复修技术的传送与培训。现时，两个分别位于越南及老挝的示范区已经开始运作，其馀三个尚在兴建阶段的示范区则分布于柬埔寨，斯里兰卡，以及巴布亚新畿内亚。

APFReN 的另一项主要活动，是由 FORSPA 资助、FRIM 主办的一个为期五周的在职培训课程，课程包括讲座及野外考察，针对有关森林复修的不同范畴，包括森林资料库、森林再生的评估、造林系统、育苗技术、补种树苗、种植后期管理与解放疏伐等。该训练课程专为区内管

理退化森林的技术人员而设。

为进一步加强资讯的交流及传播，APFReN 现正筹备一个网站，并出版新的《APFReN 通讯》。APFReN 现正招募区内的国家统筹员，以协助发展及维持网站，我已自愿作为香港的统筹员，我的工作是为网站搜集资料 (已刊登的文献著作)，以及罗列有关的专家名单，包括 (但不限于) 森林生态学 (植物和动物等)、营林学、造林学、森林环境科学及生物多样性、森林水文学及水源管理、森林防火、地理资讯系统及遥感探测、物候学及种子采购、种子测试及储存、森林遗传学、森林社会学、森林经济学、以及森林政策。我正替 APFReN 物色华南地区的统筹员。如有任何意见及建议，请与本人联络，欢迎直接电邮给我 (chhau@hkucc.hku.hk) 或透过嘉道理农场暨植物园与我联系。

侯智恒

(香港大学生态学及生物多样性学系)

ESTABLISHMENT OF APFReN – THE ASIA PACIFIC FOREST REHABILITATION NETWORK

I attended a conference on forest restoration in Malaysia in early October 2002. I would like to inform readers of *Living Forests* about a network on forest restoration in the Asia-Pacific.

Vast areas of primary forests that used to cover the Asia Pacific region have been logged or converted to other forms of land use. The majority of the remaining forests are in various states of disturbance. Rehabilitation of degraded forests is beginning to take on a very high priority in the region. Recognizing this need, FAO's Forestry Research Support Programme for Asia and the Pacific (FORSPA) in collaboration with the Forest Research Institute Malaysia (FRIM) has been facilitating the establishment of the Asia Pacific Forest Rehabilitation Network (APFReN). It aims to facilitate technology transfer and enhances the possibility of learning from the collective experiences of the countries in the Region.

The main activity of APFReN up to now has been the establishment of a network of operational-scale

demonstration sites (around 100 ha) throughout the region, with the support and the initiative of FORSPA. The objective of the establishment of these sites is to showcase how actual rehabilitation can be undertaken and to develop them as focal points for extension and training on rehabilitation technologies to all those concerned. At this moment two sites are operational, one in Vietnam and one in Lao PDR, and three others are in the process of being established in Cambodia, Sri Lanka and Papua New Guinea.

Another important activity has been a five-week on-the-job training course supported by FORSPA and organised by FRIM. The training, including lectures and field studies, dealt with aspects of forest rehabilitation relating to inventory, assessment of regeneration, silvicultural systems, nursery techniques, enrichment planting, post-planting operations, liberation thinning, etc. The training is targeted at technical staff managing degraded forest in the region.

To further strengthen information exchange and communications, APFReN is now developing a web-site and new issues of APFReN-NEWS will be published. APFReN is now looking for country coordinators to help develop and maintain the web-site. I have volunteered to become the coordinator for Hong Kong. As a coordinator, I am now looking for both information (published work) and expertise in various areas to feed the Network. This expertise includes, but is not limited to, the following: Forest Ecology (flora and fauna etc.); Forest Silviculture; Plantation Silviculture; Forest Environment Science and Biodiversity; Forest Hydrology and Water Management; Forest Fire Control; GIS and Remote Sensing; Phenology and Seed Procurement; Seed Testing and Seed Storage; Forest Genetics; Forest Sociology; Forest Economics; and Policy. I am helping APFReN to look for a coordinator for South China. Any ideas and suggestions can be sent to me at chhau@hkucc.hku.hk or through Kadoorie Farm and Botanic Garden.

BILLY HAU
(DEPARTMENT OF ECOLOGY & BIODIVERSITY,
THE UNIVERSITY OF HONG KONG)

野生动植物保护国际 (FFI)

始建于英国的野生动植物保护国际 (FFI) 成立于 1903 年，是世界上历史最悠久的国际民间环保组织之一，亦是全球少数致力保育世界各地受胁物种及生态系统的机构，凡有迫切保育需要的地方，FFI 均会伸出援手。根据有力的科学验证及顾及到人类的需要，FFI 所选取的保育措施都是可持续的。为履行本会宗旨，我们采取的策略是与国家各级的保育组织合作，务求找出解决办法，由国家牵头，一一将之付诸实行。FFI 的项目涵盖面非常广泛，保育行动遍及各个层面，包括野外考察计划、到政策发展都有。

FFI 亚太项目的区域办公室设于越南河内，并于椰加达、金边及马尼拉设立办事处，除了在柬埔寨、中国、印尼、巴布亚新畿内亚、菲律宾及越南开展以物种及地区为本的保育行动，本组织仍会应区内其他国家的要求，予以协助。全体负责有关该项目的工作人员、顾问、义工及合伙团体成员合共 90 人，虽然大多数保育项目的捐款金额均直接由捐款单位拨交给当地的执行伙伴，但 FFI 每年管理的区域性财政预算仍达二百万美元。

FFI 的保育行动紧扣四大主题，包括：

- 在物种方面，例如：进行野外调查及在指定地区作出适度干预，采取区域性策略，以保护濒危物种，如亚洲象、虎、暹罗鳄及于世上仅馀数百头的灵长类动物。
- 在地区方面，例如：在偏远山区及林区开展建立中型项目，并以可持续的方式保育和管理区内天然资源，并将计划扩展到海岸、岛屿及高海拔草地上去。
- 在国家方面，例如：致力发展保育策略、执行单位改革、把生物多样性的保育理念融入管理林区及其他土地利用方案、国家发展及监察项目 (包括环境影响评估)，与及减少贸易及耗用野生动植物带来的负面影响。
- 在公众方面，透过宣扬保育讯息的活动，教育民众，藉以改变那些破坏及损耗生物多样性的行为。

FFI 目前在国内的工作包括：

- 在青海索加地区进行生态、社会及经济调查、地区管理规划，并拟订需要跟进的项目。
- 帮助都江堰市人民政府开展生物多样性保护策略与行动计划，建议可行项目，帮助达成计划预期目标。
- 监察并发展新疆阿尔金山自然保护区藏羚羊保育管理计划。
- 检讨国内极度濒危的灵长类动物的现况，并筹划保育行动计划，这亦为 FFI 在中印半岛成功实施有关计划的延续。
- 积极参与中国环境与发展国际合作委员会 (CCICED) 辖下的生物多样性工作小组的活动，为发展全国生物多样性保育政策献出一分力量

FFI亦会应其他地区的要求作适当援助。

Bill Bleisch (FFI)

FFI IN CHINA

With its centenary in 2003, FFI (Fauna & Flora International) is the world's oldest international environmental NGO, and one of only several in the world that has a global remit to conserve all threatened species and ecosystems, anywhere there is a need we are able to address. FFI chooses solutions that are sustainable, are based on sound science and take account of human needs. Our strategy to achieve this mission is to work with in-country organizations at all levels to support them in identifying and implementing country-led solutions. The FFI programme includes a broad range of operations implemented at all levels, from field projects through to policy development.

The FFI Asia Pacific Programme has its regional office in Hanoi, and country offices in Jakarta, Phnom Penh, and Manila. The Asia Pacific programme currently includes a broad range of species- and landscape-targeted conservation initiatives in Cambodia, China, Indonesia, Papua New Guinea, The

Philippines and Vietnam, but may respond to requests for assistance in other countries in the region. FFI Asia Pacific projects are being implemented by a team of approximately 90 staff, consultants, volunteers and partner organizations. While funding for most programme activities is channelled directly from donors to partner implementing agencies, FFI manages a regional budget of approximately US\$2 million.

FFI's operations are associated with four thematic programmes. We work:

At the species level. For example, surveys and site-specific interventions and regional strategies to conserve wild populations of endangered species, including Asian elephants, tigers, Siamese crocodiles, and various species of primates whose world populations are just a few hundreds or so.

At the landscape level. For example, in medium-sized projects that establish sustainable conservation and management of natural resources at various sites around the region. These are mostly remote mountainous and forested areas, but also includes work in coastal and island areas, and high altitude grasslands.

At the national level. For example, contributing to development of policy and sectoral reforms needed to incorporate biodiversity conservation in forest and other land use management, national development and monitoring programmes (including the EIA process), and limiting the negative impacts of the trade and consumption of wildlife.

Through communications. For example, intelligent and targeted awareness campaigns designed to influence behaviors that are driving some of the destruction and loss of biodiversity.

FFI activities in China currently include:

- ecological socioeconomic surveys, landscape management planning and identification of possible follow-on projects at Soujia in Qinghai Province;
- assistance to the Dujiangyan Municipal

Government in the development of a biodiversity strategy and action plan, as well as identification of projects that would help implement the plan;

- monitoring and development of conservation management plans for Tibetan antelope in Arjinshan Nature Reserve, Xinjiang Province;
- status review and planning of conservation actions for the most endangered primates in China, an extension of FFI's successful programme for primate conservation in Indochina;
- contributions to development of China's national biodiversity conservation policy, through participation in the Biodiversity Working Group, which is established under the auspices of the CCICED.

FFI will also respond to requests for assistance in other areas.

BILL BLEISCH (FFI)

华南鹭鸟林问卷调查

嘉道理农场暨植物园于 2001 年访问了一批国内学者、林业官员及保护区职员，透过问卷调查，请他们提供有关鹭鸟林在广东、广西及海南的分布状况及其繁殖种群数量的宝贵资料。据问卷调查所得，上述地区共录得 44 个鹭鸟林，当中有三份一是于珠江三角洲内发现的，是为华南地区最主要的鹭鸟繁殖地。估计在广东有 40,000 只分属 7 种 2,200 至 2,700 巢的鹭鸟，而广西则有 6 种 2310 巢，但因回答资料不足，无从推测鹭鸟在海南的状况。一如 1994 年珠江三角洲鹭鸟林调查的资料，是次调查同样显示夜鹭



苍鹭在华南地区的繁殖状况仍有待调查。
The breeding status of Grey Heron in the South China regions are awaiting further studies.

(*Nycticorax nycticorax*)为繁殖地的优势种,夜鹭昼伏夜出,因此较少受人为活动影响。森林依赖种方面,在广西发现两个荒废的鹭鸟林,约有30个巢,相信是由黑冠鵙(*Gorsachius melanolophus*)及海南鵙(*G. magnificus*)所筑成。我们建议应定期进行野外繁殖种群普查,并禁止采集鸟蛋及捕捉雏鸟,以加强对鹭鸟林的保护。

黄伦昌 (嘉道理农场暨植物园)

SOUTH CHINA EGRETRY QUESTIONNAIRE SURVEY

In 2001, a questionnaire survey was conducted by KFBG to collect the information on ardeid nesting colony distribution and nesting population size in Guangdong, Guangxi and Hainan in South China from Mainland academics, forestry officials and nature reserve staff. A total of 44 colonies were noted and one third of them were found in the Pearl River Delta, the most important ardeid breeding area in South China according to this study. About 40,000 individuals and 2,200-2,700 nests of seven species in Guangdong, and 2,310 nests of six species in Guangxi, were estimated, while little information was available in Hainan. Similar to the findings from a Pearl River Delta nesting colony survey in 1994, this study showed that Black-crowned Night Heron *Nycticorax nycticorax* is the dominant breeding species. This species is nocturnal and thus less affected by human activities. Among forest-dependent ardeids, two abandoned colonies of about 30 nests were found in Guangxi, both thought to have been made by Malayan Night Heron *Gorsachius melanolophus* and White-eared Night Heron *G. magnificus*. To better conserve these birds, regular field counting of nesting populations, and strengthening of the protection of colonies against egg and chick collection are recommended.

Captain Wong (KFBG)

生物多样性奖学金消息

嘉道理农场暨植物园于1999年开办的生物多样性奖学金，直至现时为止，已有18名内地学生受

惠。当中 1999 年度奖学金得主黄建华同学及邹发生同学刚完成他们的研究论文，其题目分别为「广西猫儿山天牛科甲虫多样性的研究」以及「海南尖峰岭热带雨林的鸟类族群研究」。黄同学将于西南农业大学继续进修，攻读昆虫份子系统及进化、份子生态学及其族群遗传学等学科。

我们谨此恭贺上述奖学金得主能顺利完成学业，并希望他们日后能为保护野生动植物而继续努力。

2000年度的奖学金得主朱世杰同学已获准直接攻读博士研究而放弃他原来的硕士论文《广东省石门台省级自然保护区和白盆珠市级自然保护区鸟类生物多样性的研究》，转为研究另一题目。因本奖学金规定不能在未与本园达成共识前更改论文题目，我们未能继续其奖学金之赞助，对此我们深表抱歉，但仍衷心祝福朱同学在新的研究项目上取得成功。

2001 年度的研究进度令人满意，而在 2002 年度的奖学金申请中，我们收到 23 名来自不同省份的奖学金申请，当中不乏高质素的学生，他们的研究题目涵盖生物多样性保育中很多不同的范畴。为此，我们在8月下旬于广州进行面试，甄选出三名表现杰出的学生。三名获颁发奖学金的学生的资料及其研究题目如下表：

2003 年度生物多样性奖学金将于本年 5 月接受申请。欢迎各位计划在华南地区从事野生动植物研究的博士及硕士研究生申请。详情请浏览本园网页 www.kfbg.org 的最新消息。

吴狄姬(嘉道理农场暨植物园)

STUDENTSHIP NEWS

Since the launching of KFBG Biodiversity Studentship Scheme in 1999, eighteen Mainland students have been beneficiaries. 1999 studentship holders, Mr. Huang Jianhua and Mr.Zou Fa-sheng have completed their respective research theses on "Cerambycidae (Coleoptera: Polyphaga) Diversity in Mao Er Shan, Guangxi" and "A study on Bird Communities of Tropical Rain Forest at Jianfengling in Hainan". Mr. Huang will further his studies on the molecular systematics and evolution, molecular ecology and population genetics of insects at Southwest Agricultural University this year.

We congratulate them for the successful completion of the studies and hope they will continue their efforts in contributing to wildlife conservation.

One 2000 awarded student, Mr. Zhu Shijie, has discontinued his "Study on the species diversity of birds in Shimentai Nature Reserve and Baipanzhu Nature Reserve of Guangdong Province" and advanced to the Ph.D. study on another topic. Although regrettably the studentships are not transferable without prior agreement, we wish Mr. Zhu the best of luck with his new research. Other studies under the studentship scheme (2001) are on going.

In 2002, 23 applications were received from different China provinces. Most were of high quality and the research topics covered different areas of biodiversity conservation. Interviews were conducted in

Name	Institution	Supervisor	Project title
Lin Yu, M.Phil. student 林宇, 硕士研究生	Guangxi Normal University 广西师范大学	Prof. Xue Yuegui 薛跃规教授	Study on plant diversity and conservation of the world's largest doline in Leye, Guangxi, China 广西乐业大石围天坑植物多样性及保育研究
Rao Dingqi, Ph.D. student 饶定齐, 博士研究生	Kunming Institute of Zoology, CAS 中国科学院 昆明动物研究所	Prof. Yang Junxing 杨君兴教授	Studies on the biodiversity and classification of the tree frogs (Rhacophorids) in North Guangxi 广西北部树蛙类的物种多样性和分类研究
Kong Deping, Ph.D. student 孔德平, 博士研究生	Kunming Institute of Zoology, CAS 中国科学院 昆明动物研究所	Prof. Yang Junxing 杨君兴教授	Analysis on fish fauna and zoogeography of Dayaoshan 广西大瑶山地区鱼类区系及其动物地理分析

Guangzhou in late August and three outstanding candidates have been selected to receive this year's studentships. The details of these three students and their topics are shown below:

Invitation for applications for the 2003 KFBG Biodiversity Studentships will be issued in May 2003. All M.Phil.or Ph.D.students conducting research about fauna and flora in natural habitats in South China are welcome to apply. Please visit the KFBG website www.kfbg.org for the latest announcements and details.

Norris Ng (KFBG)

本园的人事变动

华南生物多样性保育项目研究队在 2002 年经历了不少人事变动。首先本园要向高级保育主任林咏怡小姐道别，为追寻学业上的成就，她已于 8 月远赴加拿大温哥华修读地理资讯系统(GIS)课程。本园对于林小姐在过往 2 年工作的热忱与贡献，深表谢意，同时衷心祝愿她在彼邦生活安好。

行政主任潘慧贤小姐亦于 6 月离职，现以自雇形式从事翻译工作，我们感激她一直不辞劳苦地为本项目服务，希望她的事业能取得成功。陈翠玲小姐随即于 8 月入职，接替其职务。陈小姐拥有 2 年资讯科技翻译的经验。

刚于浸会大学毕业的林芷薇小姐自 6 月开始，出任翻译员一职。她曾于 2000 年 6 月至 2001 年 7 月在本园实习。

吴狄姬小姐亦于 7 月中加入本园为项目主任，她于入职前在地球之友(香港)工作了四年半，同样出任项目主任一职。她将负责接洽、统筹及监管华南生物多样性保育的赞助与合作项目。

本园藉此欢迎各位新成员，希望他们工作愉快。

PERSONNEL CHANGES AT KFBG

It's goodbye to Miss Vicky Lam, of our South China Biodiversity Conservation Programme, who has left KFBG in pursuit of further academic achievement studying Geographical Information Systems in Vancouver, Canada. The Farm would like to express gratitude towards Miss Lam for her dedication and enthusiasm during just over two-years as Senior Conservation Officer. We wish her well in her new habitat abroad.

Administration Officer, Miss Vera Poon, also left in June 2002 to work as a freelance translator. We are much obliged for her efforts and wish her every success in her new work. A full-time replacement Miss Choyce Chan was recruited. Choyce has two years' experience of translation in a public relations firm in the Information Technology industry.

Miss Ela Lam started working full-time in the capacity of translator in June 2002. She was a fresh graduate from the Baptist University and worked as intern at KFBG from June 2000 to July 2001.

A new Project Officer Miss Norris Ng also joined the team in mid July 2002. She had been working as a Project Officer at Friends of the Earth (Hong Kong) for four and a half years before joining KFBG. She will take up the responsibilities of coordinating, facilitating and monitoring of our sponsored and collaborative biodiversity conservation projects in China.

A welcome to all new staff and let's hope they enjoy their work at the Farm!

《中国外来入侵种》出版

李振宇，解焱（主编）2002。《中国外来入侵种》。中国林业出版社，共 224 页，附彩页。

自1999年迄今，中国环境与发展国际合作委员会生态安全课题组(原为生物多样性课题组)对中国外来入侵种作全面调查及评估，把过往研究成果结集成书，题为《中国外来入侵种》—— 为国内首部详尽剖析外来入侵种的著作。本书介绍了外来入侵种的现状及其影响，更阐述何以入侵种对中国经济、环境、生物多样性及人类健康构成威胁。此外，书中更提供有关防治127种外来入侵种的相应对策，及其分类学、辨认法、生物学、现时及原来分布情况、引入原因、影响及防治措施。每一物种均至少附有一张彩图及其在中国的分布图，以便查阅。如欲免费索取此书，请填妥并邮寄下列表格。

Launch of “Invasive Alien Species in China”

Li Zhenyu & Xie Yan (eds.) 2002. *Invasive Alien Species in China*. China Forestry Publishing House. 224 pages, colour. (In Chinese.)

Since 1999 the Eco-security Task Force (formerly Biodiversity Working Group) of the China Council for International Cooperation on Environment and Development (CCICED) has engaged in a comprehensive study and impact evaluation of invasive alien species. Based on these studies, ETF/CCICED has compiled the booklet *Invasive Alien Species in China*, the first publication to comprehensively address the IAS (invasive alien species) issue in China. The book introduces the status and impacts of IASs, and the reasons they pose such a threat to the economy, environment, biodiversity and human health in China. It describes the taxonomy, identification, biology, current and original distribution, reasons for introduction, impacts and control measures of 127 IASs in China. For each species, there is at least one colour photo and a map showing its distribution in China. Free copies can be obtained by completing and mailing the form to the following address:

回执 Reply Slip（欢迎散布复制，请详细填写，以便将来联系）

姓名 Name			
单位 Organization			
地址 Address		邮编 Postal Code	
电话 Telepone		传真 Fax	
电邮 Email / 网址 Http:			
专长（欢迎另附简历） Specialized Area (C.V.)			
欢迎查阅 www.chinabiodiversity.com 右下角的专家检索系统。 Please browse on the Expert Search Tool located at the bottom right corner of www.chinabiodiversity.com			
您是否同意将您的资讯放入该专家检索系统： Do you agree to post your information on the Expert Search Tool?			
希望得到出版物 Preference of publications			
备注 Remarks			

回执请寄至
解焱 收
中科院动物所
北四环西路 25 号
北京 100080
或传真：010 6264 7675

Please send the reply slip to:
Xie Yan
Insititute of Zoology, CAS
25 Bei Xi Huan Lu, Beijing 100080 or
Fax: 010 6264 7675

二零零二年具保育价值的
野生动植物纪录

Wildlife Whereabouts – some recent
records of conservation importance 2002

以下是 2002 年嘉道理农场暨植物园考察队专家在本项目的野外调查所作的纪录。

The following records were made by specialist team members during KFBG surveys in 2002.

国际濒危等级是以世界自然保护联盟 (IUCN) 提供的濒危物种红色名录为准；国家濒危等级是以中国的濒危物种红皮书为准。

Global status is based on IUCN Red List of Threatened Animals and Plants; national status is based on respective Red Data Books.

注释 Key: CR = 极危 Critically Endangered; EN = 濒危 Endangered; VU = 易危 Vulnerable; NT(LR) = 接近受危 Near-threatened (Lower Risk); R = 稀有 Rare.

植物 Plants



海南粗榧 *Cephalotaxus mannii*
大雾岭自然保护区
Cephalotaxus mannii
Dawuling NR

- 海南粗榧 *Cephalotaxus mannii* Hook. f. (全球：易危) 7 月 1 日，于广东西部大雾岭保护区的十二蓝江坑 (海拔 1,300 米) 录得一株大树，树高约 15 米，胸径约 120 厘米。

Cephalotaxus mannii Hook. f. (Global: VU) One tree was recorded at Shierlanjiangkeng (1,300m asl) in Dawuling Nature Reserve, W Guangdong on 1 July. The tree was 15m tall and 120cm dbh.

- 马蹄参 *Diplopanax stachyanthus* Hand.-Mazz. (全球：易危) 5 月 24 日，于广西西北部岑王老山保护区李闹山 (海拔 1,600 米) 内的成熟溪谷阔叶林里看到掉下来的种籽，但见不到树。

Diplopanax stachyanthus Hand.-Mazz. (Global: VU) Fallen seeds were seen at Linaoshan (1,600m asl) at Cenwanglaoshan Nature Reserve, NW Guangxi in mature ravine broadleaf forest on 24 May. The tree was not seen.

- 伯乐树 *Bretschneidera sinensis* Hemsl. (全球：濒危) 9 月 19 日，于广东北部罗坑保护区大空潭水力发电站往坪坑村的小径旁 (海拔 1,200 米)，录得一棵约 1.5 米高的树苗。

Bretschneidera sinensis Hemsl. (Global: EN) One sapling about 1.5m tall was recorded along a path from Dakongtan hydroelectric station to Pingkeng Cun in Luokeng Nature Reserve (1,200m asl), N Guangdong, on 19 September.

- 十齿花 *Dipentodon sinicus* Dunn (中国：稀有) 5 月 28 日，于广西西北部岑王老山保护区九洞村 (海拔 1,240 米) 溪边录得一棵，树约 4 米高，胸径约 15 厘米，树上结有果实。

Dipentodon sinicus Dunn (China: R) One tree was recorded along a stream at Jiudong Cun at



Cenwanglaoshan NR (1,240m asl), NW Guangxi, on 28 May. The tree was about 4m tall and 15cm dbh, with fruit.

- **任木** *Zenia insignis* Chun (全球：接近受危) 5月24日，于广西西北部岑王老山保护区周边的浪平乡(海拔1,220米)录得一拥有6棵植株的种群。树高约4至20米高、胸径达80厘米，生长于村后一片石灰岩树林中。

Zenia insignis Chun (Global: LR/nt) A population of 6 trees was recorded at Langping Xiang (1,220m asl), near Cenwanglaoshan NR, NW Guangxi, on 24 May. The trees were about 4-20m tall and up to 80cm dbh, found in a small patch of limestone forest behind a village.

- **吊皮椎** *Castanopsis kawakamii* Hayata (全球：接近受危) 7月5日，于广东西部黑石顶保护区的实验区内(海拔540米)录得一逾50棵植株的种群。树高达30米，胸径约80厘米。

Castanopsis kawakamii Hayata (Global: LR/nt) A population with more than 50 trees was recorded at the experimental zone (540m asl) of Heishiding Nature Reserve, W Guangdong on 5 July. The trees were up to 30m tall and 80cm dbh.

- **华南椎** *Castanopsis concinna* (Champ. ex Benth.) A. DC. (全球：易危) 7月27日，于广东台山北峰山森林公园的凤山坑水库下方(海拔250米)录得一种群，有50棵以上的植株。树高达20米，胸径达60厘米。

Castanopsis concinna (Champ. ex Benth.) A. DC. (Global: VU) A population with more than 50 trees was recorded below the Fengshankeng Reservoir (250m asl) in Beifengshan Forest Park in Taishan, Guangdong on 27 July. The trees were up to 20m tall and 60cm dbh.

- **长柄水青冈** *Fagus longipetiolata* Seemen (全球：易危) 5月23至25日，分别于广西西北部岑王老山保护区的李闹山(海拔1,600米)及猴子洞(海拔1,400米)录得两个种群，各种群至少拥有30棵树。树高达30至40米，胸径100厘米，生长于成熟沟谷阔叶林内。

Fagus longipetiolata Seemen (Global: VU) Two populations, each with at least 30 trees, were recorded at Linaoshan (1,600m asl) and Houzidong (1,400m asl) in Cenwanglaoshan NR, NW Guangxi on 23-25 May. The trees were up to 30-40m tall and 100cm dbh, in a mature ravine broadleaf forest.

- **贵州山核桃** *Carya kweichowensis* Kuang & A.M. Lu (广西新记录) 5月24至29日，于广西西北部岑王老山保护区周边的浪平乡(海拔1,220米)录得一个约5棵树的种群，树高大约4至20米，胸径约20至80厘米。此乃广西的新记录，以前被认为是贵州的特有种。

Carya kweichowensis Kuang & A.M. Lu. (New record of Guangxi) One population of about 5 trees was recorded at Langping Xiang (1,220m asl), near Cenwanglaoshan NR, NW Guangxi, on 24 May. The trees were about 4-20m tall and 20-80cm dbh. This is a new record of Guangxi; it was previously considered endemic to Guizhou.

- **合柱金莲木** *Sinia rhodoleuca* Diels (中国：稀有) 7月5至7日，于广东西部黑石顶保护区内的实验区及核心区(海拔520-640米)，看到13棵零散分布的植株。植株为不高于1.5米的亚灌木到灌木。

Sinia rhodoleuca Diels (China: R) About 13 scattered individuals were seen in the experimental zone and core area of Heishiding Nature Reserve (520-640m asl), W Guangdong, on 5-7 July 2002. The plant were subshrubs to shrubs less than 1.5m tall.

- **马尾树** *Rhoiptelea chiliantha* Diels & Hand.-Mazz. (全球：易危) 普遍见于广西西北部岑王老山保护区内，在5月22至28日考察期间看到100棵以上。马尾树散布于保护区的次生林及溪谷阔叶林内，树高达20米，胸径达50厘米。

Rhoiptelea chiliantha Diels & Hand.-Mazz. (Global: VU) Locally abundant, with more than 100 trees seen, at Cenwanglaoshan NR, NW Guangxi, on 22-28 May. The trees were up to 20m tall and 50cm dbh, scattered over the Nature Reserve and mainly found in secondary forest and ravine broadleaf forest.



绣球茜 *Dunnia sinensis*
北峰山森林公园
Dunnia sinensis Beifengshan Forest Park

- **绣球茜** *Dunnia sinensis* Tutcher (中国：濒危) 普遍见于广东台山北峰山森林公园内，在7月26至27日期间见到超过100棵。主要见于山边灌木丛，林边及路边山坡上。为不高于1.5米的灌木。

Dunnia sinensis Tutcher (China: EN) The species was locally abundant, with more than 100 plants seen, in Beifengshan Forest Park at Taishan, Guangdong, on 26-27 July. It was mainly found in hillside shrubland, at forest margins and on roadside slopes. The plant were shrubs less than 1.5m tall.

- **香果树** *Emmenopterys henryi* Oliv. (中国：易危) 常见于广西西北部岑王老山保护区，在5月23至28日的考察期间看到50棵以上。树高达30米，胸径达60厘米，散布于保护区内，主要见于成熟溪谷阔叶林内。

Emmenopterys henryi Oliv. (China: VU) Locally common, with more than 50 trees seen, at Cenwanglaoshan NR, NW Guangxi, on 23-28 May. The trees were up to 30m tall and 60cm dbh, scattered over the Nature Reserve and mainly found in mature ravine broadleaf forest.

- **掌叶木** *Handeliodendron bodinieri* (H. Lév.) Rehder (中国：稀有) 常见于广西西北部岑王老山保护区周边的浪平乡(海拔1,220米)，在5月24至29日考察期间看到50棵以上。为不高于4米的高灌木及小树，主要见于村后的石灰岩树林及高灌木丛内。

Handeliodendron bodinieri (H. Lév.) Rehder (China: R) Locally common, with more than 50 trees seen, at Langping Xiang (1,220m asl), near Cenwanglaoshan NR, NW Guangxi on 24 & 29 May. The plants were tall shrubs to small trees less than 4m tall, mainly found in limestone forest and tall shrubland behind villages.

- **紫荆木** *Madhuca pasquieri* (Dubard) H.J. Lam (全球：易危) 7月5日，于广东西部黑石顶保护区的实验区内，沿著小径(海拔320米)看到3棵约2至4米高的小树。

Madhuca pasquieri (Dubard) H.J. Lam (Global: VU) Three individuals were seen along a path in the experimental zone (320m asl) of Heishiding NR, W Guangdong on 5 July. The trees were saplings about 2-4m tall.

- **银鹊树** *Tapiscia sinensis* Oliv. (全球：易危) 5月28日，于广西西北部岑王老山保护区马家坪前往九洞坪的小径(海拔1,310米)，看到一株约4米高，胸径达15厘米的开花植株。

Tapiscia sinensis Oliv. (Global: VU) One tree was seen along the path from Majiaping to Jiudongping (1,310m asl) at Cenwanglaoshan NR, NW Guangxi, on 28 May. Tree about 4m tall and 15 cm dbh, flowering.

- **红皮糙果茶** *Camellia crapnelliana* Tutcher (全球：易危) 5月27日，于广西西北部岑王老山保护区九洞坪(海拔1,570米)看到一个由6棵植株组成的种群。小树结有果实，约6米高，胸径达20厘米。

Camellia crapnelliana Tutcher (Global: VU) A population of 6 trees was seen at Jiudongping at Cenwanglaoshan NR (1,570m asl), NW Guangxi, on 27 May. The trees were up to 6 m tall and 20 cm dbh, fruiting.

- **董棕** *Caryota urens* L.(中国：国家二级保护) 6月13日，于广西靖西县古龙山水源林保护区，发现约二十株野生植株。除龙州县外，此乃广西第二个分布点。
Caryota urens L.(China: National Protection Class II) About 20 wild individuals were found at Gulongshan Headwater Forest Nature Reserve, Jingxi County, Guangxi, 13 June. This is the second locality known in Guangxi after Longzhou County.
- **白花兜兰** *Paphiopedilum emersonii* Koop.& P.J.Cribb(中国：濒危、特有种) 6月9日，在广西北部的一个保护区外，发现两个共三十多丛、长出蒴果的野生种群。此物种仍然受到过度采集作观赏用途的严重威胁。
Paphiopedilum emersonii Koop.& P.J.Cribb(China: EN, endemic) Two wild capsule- bearing populations of over 30 clumps were found outside a nature reserve in northern Guangxi, 9 June. This species is seriously threatened by over-collection for ornamental uses.
- **小叶兜兰** *Paphiopedilum barbigerum* T.Tang & F.T.Wang (全球：易危、广西和贵州特有种) 6月11日，在广西都安县一个未受保护的地点，发现一个约五丛、长出蒴果的野生种群。此物种仍然受到过度采集作观赏用途的严重威胁。
Paphiopedilum barbigerum T.Tang & F.T.Wang (Global: VU; endemic to Guangxi and Guizhou) A wild capsule- bearing population of about 5 clumps was found in an unprotected area of Duan County, Guangxi, 11 June. This species is seriously threatened by over- collection for ornamental uses.

哺乳类 Mammals



黄腹鼬 *Mustela kathiah*
岑王老山自然保护区
Yellow-bellied Weasel *Mustela kathiah*
Cenwanglaoshan NR

- **斑林狸** *Prionodon pardicolor* (中国：濒危、国家二级保护) 5月24日，于广西西北部岑王老山保护区 (海拔约 1,400 米)以红外线自动照相机拍摄到一只 (见封面照)。
Spotted Linsang *Prionodon pardicolor* (China: EN, National Protection Class II) One was captured by infrared auto-trigger camera at Cenwanglaoshan NR (ca. 1,400m asl), NW Guangxi, 24 May (see front cover photo).
- **豹猫** *Prionailurus bengalensis* (中国：易危) 6月期间，于广西西北部岑王老山保护区老山分场地区以红外线自动照相机拍摄到一只。
Leopard Cat *Prionailurus bengalensis* (China: VU) One was captured in June by infrared auto-trigger camera around Laoshan substation at Cenwanglaoshan NR, NW Guangxi.
- **红长吻松鼠** *Dremomys rufigenis* 6月期间，于广西西北部岑王老山保护区老山分场地区以红外线自动照相机拍摄到一只 (见第 32-33 页)。

- **黄腹鼬** *Mustela kathiah* 5月22日，村民于广西西北部岑王老山保护区老山分场附近(海拔约 1,415 米)捕获一只幼体。同月以红外线自动照相机在附近拍摄到一只成体。
Yellow-bellied Weasel *Mustela kathiah* A young individual was captured by a villager around Laoshan substation (ca. 1,415m asl) at Cenwanglaoshan NR, NW Guangxi, 22 May. An adult was captured by infrared auto-trigger camera in the same vicinity the same month.

- Red-cheeked Squirrel** *Dremomys rufigenis* One was captured in June by infrared auto-trigger camera around Laoshan substation at Cenwanglaoshan NR, NW Guangxi (see P.32-33).
- **银星竹鼠** *Rhizomys pruinosus* 5月24日，于广西西北部岑王老山保护区老山分场地区以红外线自动照相机拍摄到一只。9月17日，于广东北部罗坑保护区下其坑的溪边看到一具尸体 (海拔 305 米)。
Hoary Bamboo Rat *Rhizomys pruinosus* One was captured by infrared auto-trigger camera around Laoshan substation at Cenwanglaoshan NR, NW Guangxi, 24 May. A dead adult was seen along the stream bank of Xiaqikeng (305m asl) in Luokeng NR, N Guangdong, on 17 September.

鸟类 Birds

- **白鹇** *Lophura nycthemera* (中国：国家二级保护) 6月期间，于广西西北部岑王老山保护区老山分场地区以红外线自动照相机拍摄到一只雄鸟(见第 32-33 页)。
Silver Pheasant *Lophura nycthemera* (China: National Protection Class II) A male was captured in June by infrared auto-trigger camera around Laoshan substation at Cenwanglaoshan NR, NW Guangxi (see P.32-33).



黄咀角鸮的雏鸟 *Otus spilocephalus*
黑石顶自然保护区
Juvenile of Mountain Scops Owl *Otus spilocephalus*
Heishiding NR

- **黄咀角鸮** *Otus spilocephalus* (中国：国家二级保护) 7月5日，于广西西部黑石顶保护区(海拔 480 米)看到四只雏鸟；这表示此物种能够在低海拔繁殖。
Mountain Scops Owl *Otus spilocephalus* (China: National Protection Class II) Four juveniles were seen at Heishiding NR (480m asl), W Guangdong, on 5 July; this indicates that this species can breed at low altitude.
- **蓝喉拟啄木鸟** *Megalaima asiatica* 5月22至29日，于广西西北部岑王老山保护区录得。另外本研究队于1999年亦在底定、岑王老山和大王岭记录到此物种。广西并无蓝喉拟啄木鸟的分布纪录。

- Blue-throated Barbet** *Megalaima asiatica* Recorded at Cenwanglaoshan NR, NW Guangxi, on 22-29 May. This species has not been previously recorded in Guangxi, but was also recorded by SCBT at Diding, Cenwanglaoshan and Dawangling in 1999.
- **短咀金丝燕** *Collocalia brevirostris* 9月17日，于广东北部罗坑保护区罗坑镇附近的石灰岩洞穴 (海拔 205 米)外看到约 200 只。此物种在华南的状况不明。
Himalayan Swiftlet *Collocalia brevirostris* About 200 were seen outside a limestone cave (205m asl) near Luokeng Town in Luokeng NR, N Guangdong, on 17 September. South China status poorly recorded.
- **长尾阔咀鸟** *Psarisomus dalhousiae* (中国：国家二级保护) 5月23及28日，于广西西北部岑王老山保护区(海拔 1,240 米及 1,570 米)见到两只。这是成熟阔叶森林内的偶见种。
Long-tailed Broadbill *Psarisomus dalhousiae* (China: National Protection Class II) Two were seen at Cenwanglaoshan NR (1,240m asl and 1,570m asl), NW Guangxi, on 23 and 28 May. An uncommon species of mature broadleaf forest.



长尾山椒鸟 *Pericrocotus ethologus*
岑王老山自然保护区
Long-tailed Minivet *Pericrocotus ethologus*
Cenwanglaoshan NR

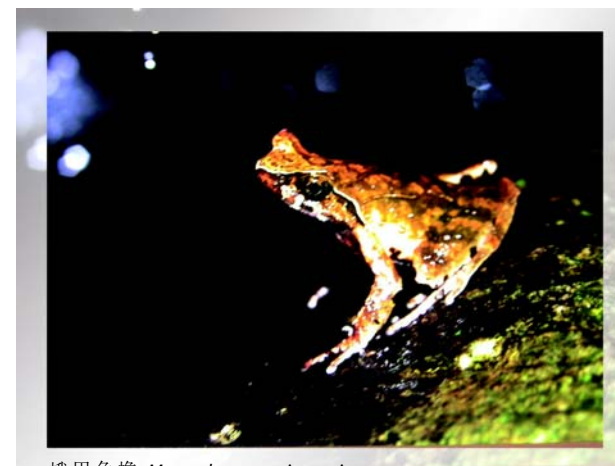
- **棕喉雀鹛** *Alcippe castaneiceps* 5月25日，于广西西北部岑王老山保护区(海拔1,315米)看到两只，而广西第一个记录亦由本研究队于1999年于岑王老山保护区录得。
Rufous-winged Fulvetta *Alcippe castaneiceps* Two were seen at Cenwanglaoshan NR (1,315m asl), NW Guangxi, on 25 May. The first Guangxi record was also made by SCBT from Cenwanglaoshan in 1999.
- **戈氏岩鹛** *Emberiza godlewskii* 5月22日，于广西西北部岑王老山保护区(海拔1,315米)看到一只。此乃广西的新记录。
Godlewski's Bunting *Emberiza godlewskii* One was seen at Cenwanglaoshan NR (1,310m asl), NW Guangxi, on 22 May. This is a new record for Guangxi.

两栖类 Amphibians



大鲵 *Andrias davidianus*
岑王老山自然保护区
Chinese Giant Salamander *Andrias davidianus*
Cenwanglaoshan NR

- **大鲵** *Andrias davidianus* (中国：国家二级保护) 5月26日，偷猎者于广西西北部岑王老山保护区捕获两尾幼年的大鲵。此两尾大鲵被保护区官员没收并放生。
Chinese Giant Salamander *Andrias davidianus* (China: National Protection Class II) Two juveniles were confiscated from poachers by staff of Cenwanglaoshan Nature Reserve, NW Guangxi, on 26 May. The animals were released.
- **细痣棘螈** *Tylototriton asperrimus* (中国：国家二级保护) 6月29日到7月2日，于广东西部大雾岭保护区发现很多。
Tylototriton asperrimus (China: National Protection Class II) Many were seen at Dawuling Nature Reserve, W Guangdong, from 29 June to 2 July.



峨眉角蟾 *Megophrys omeimontis*
岑王老山自然保护区
Megophrys omeimontis
Cenwanglaoshan NR

- **峨眉角蟾** *Megophrys omeimontis* 5月22至29日，于广西西北部岑王老山保护区见到很多。这种蛙只曾在四川有记录。
Megophrys omeimontis Many were seen at Cenwanglaoshan Nature Reserve, NW Guangxi on 22-29 May. Previously this species was only known from Sichuan.
- **黑眼睑小树蛙** *Philautus gracilipes* 7月1日到3日，于广东西部大雾岭保护区见到很多。这种蛙只曾在云南和广西有记录。
Philautus gracilipes Many frogs were seen at Dawuling Nature Reserve, W Guangdong, from 1 to 3 July. Previously this species was only known from Yunnan and Guangxi.

爬行类 Reptiles

- **瑶山鳄蜥** *Shinisaurus crocodilurus* (中国：国家一级保护) 9月17至19日，于广东北部罗坑保护区的四条溪流内发现八条瑶山鳄蜥。直到最近此物种都被认为是广西大瑶山的特有种。
Crocodile Lizard *Shinisaurus crocodilurus* (China: National Protection Class I) Eight were seen along four streams of Luokeng Nature Reserve, N Guangdong, from 17 to 19 September. Until recently it was thought to be restricted to the Dayaoshan range in Guangxi.



缅北腹链蛇 *Amphiesma venningi*
岑王老山自然保护区
Amphiesma venningi
Cenwanglaoshan NR

- **缅北腹链蛇** *Amphiesma venningi* 5月26日，于广西西北部岑王老山保护区的溪流内发现两条，这种蛇只曾在云南和缅甸有记录。
Amphiesma venningi Two were seen along the stream of Cenwanglaoshan Nature Reserve, NW Guangxi on 26 May. Previously this species was only known from Yunnan and Burma.

广东古斗山自然保护区的蕨类植物

The Ferns of Gudoushan Nature Reserve, Guangdong

严岳鸿
Yan Yuehong

邢福武
Xing Fuwu

黄向旭
Huang Xiangxu

广州中国科学院华南植物研究所
(South China Institute of Botany, CAS, Guangzhou, 510650)

古斗山自然保护区位于广东省中南部江门市地区，为珠江口沿海西部，112°52'30"-113°03'25"E，22°5'00"-22°21'15"N，总面积达116平方公里。境内地貌属中、低山丘陵，主要由花岗岩组成，最高峰为狮子头，海拔达986米。该保护区属亚热带海洋性季风气候，年均温度约22℃，年均降水量约1,790~2,250mm，干湿季节交替明显。该区土壤类型为地带性赤红壤，呈酸性。代表性植被类型为亚热带季风常绿阔叶林，历史上曾经遭到严重的人为破坏，原始森林植被已荡然无存，现存的大面积常绿阔叶林是经过30~40年发育而来的次生林，结构复杂，林冠连续，森林郁闭度大，蕨类植物种类丰富。2001年7月25日至2002年3月间，我们先后三次对广东古斗山自然保护区的蕨类植物进行了物种多样性及其群落学的调查研究。

1. 古斗山自然保护区的蕨类植物的物种多样性

据我们的调查结果和参考以前调查资料，古斗山有蕨类植物32科56属120余种，多以热带亚洲成分和泛热带成分为主，约占种类总数的2/3，而热带亚洲成分为其主要组成部分，主要有崇澍蕨(*Chieniopteris harlandii*)、芒



里白群落 *Diplopterygium thicket*
古斗山保护区 Gudoushan NR

其(*Dicranopteris pedata*)、金毛狗(*Cibotium barometz*)、黑桫欏(*Gymnosphaera podophylla*)、阔叶骨碎补(*Davallia solida*)等，约占总数的60%；温带成分对该地区蕨类植物区系仍有一定影响，

Gudoushan Nature Reserve is situated in Jiangmen City, mid-south of Guangdong and west of Pearl River Delta, at 112°52'30"-113°03'25"E by 22°5'00"-22°21'15"N. With an area of 116 km², Gudoushan's landscape is mainly composed of low to mid-altitude granite hills, with the highest peak at Shizitou at 986m. With distinct dry and wet seasons, Gudoushan Nature Reserve has a southern sub-tropical maritime monsoonal climate, with a mean annual temperature of 22°C and annual precipitation of 1,790-2,250mm. The soil is characterized by acidic laterite. The original vegetation would have been southern sub-tropical monsoonal broadleaf forest, but has been seriously depleted by human activities, leaving no primary vegetation. The existing extensive forest cover is secondary forest regenerated in the last 30-40 years. Despite its secondary nature, the complex structure, dense coverage and continuous canopy of the forest result in rich diversity of ferns. Over the period from 25 July 2001 to Mar 2002, we conducted three surveys of fern species diversity and community composition

in Gudoushan Nature Reserve.

1. Fern species diversity in Gudoushan Nature Reserve

According to our present surveys and earlier surveys of the same region, about 120 fern species in 32 families and 56 genera are known from Gudoushan. This recorded fern flora is dominated by Pantropical and Tropical Asian components, which account for two-thirds of the fern species. The Tropical Asian component is the major part accounting for 60% of



假芒蕨 *Sticherus laevigatus*
古斗山保护区 Gudoushan NR

虽然约占总数的15%，但缺乏典型的北温带成分，大多数为东亚地区广布种类，如狗脊(*Woodwardia japonica*)、乌毛蕨(*Woodwardia orientalis*)、深绿卷柏(*Selaginella doederleinii*)、双盖蕨(*Diplazium donianum*)、镰羽贯众(*Cyrtomium balansae*)等；中国特有成分约占15%，但其中大部分是热带性质很强的华南地区特有，如狭叶紫萁(*Osmunda angustifolia*)、粤里白(*Diplopterygium cantonensis*)、柄叶鳞毛蕨(*Dryopteris podophylla*)和小石松(*Lycopodiella caroliniana*)等。结果表明：古斗山地区的蕨类植物区系性质应是以热带性质为主，与其所处南亚热带的地理位置相一致。

在古斗山的蕨类植物科属组成中，种类较多的科主要是鳞毛蕨科(9种)、卷柏科(8种)、凤尾蕨科(7种)、里白科(7种)、水龙骨科(7种)等，种类较多的属主要是卷柏属(*Selaginella*，8种)和凤尾蕨属(*Pteris*，7种)；代表典型的中亚热带性质的鳞毛蕨属(*Dryopteris*)、耳蕨属(*Polystichum*)种类很少，数量也不多，区中也没有蹄盖蕨属(*Athyrium*)的分布，与“耳蕨-鳞毛蕨”植物区系相比相差甚远，与中国东部及东南部的“中国-日本蕨类植物区系”也有较大差别，古斗山大多数蕨类植物种类以热带亚洲分布为主，属于华南-中南半岛-印度-马来亚分布中心。

2. 古斗山自然保护区的蕨类植物群落主要特征

根据蕨类植物的生活习性特点和保护区的自然条件，我们分别在海拔10米至980米范围内的不同生境中，选取108个5m×5m的代表性的小样方，记录样方中的建群种和蕨类植物

species. Important species in this category include *Chieniopteris harlandii*, *Dicranopteris pedata*, *Cibotium barometz*, *Gymnosphaera podophylla*, and *Davallia solida*. The Temperate component, which accounts for 15% of species, is also significant in the fern floristics, but it is represented mainly by widespread species of the East Asia region, such as *Woodwardia japonica*, *Selaginella doederleinii*, *Diplazium donianum*, and *Cyrtomium balansae*, while typically North Temperate species are sparse. China endemics account for 15% of the fern species and most are tropical species endemic to the South China region, such as *Osmunda angustifolia*, *Diplopterygium cantonensis*, *Dryopteris podophylla* and *Lycopodiella caroliniana*. These findings suggest that the floristic composition of ferns in Gudoushan is mainly tropical, as would be expected from its geographical location.

Of the fern families recorded in Gudoushan, those with the highest species richness are Dryopteridaceae (9 species), Selaginellaceae (8 species), Pteridaceae (7 species), Gleicheniaceae (7 species) and Polypodiaceae (7 species), and the genera with highest number of species are *Selaginella* (8 species) and *Pteris* (7 species). The low species richness and abundance of the typically sub-tropical genera *Dryopteris* and *Polystichum* and the lack of *Athyrium* in Gudoushan indicate a significant difference from the "Polysticho-Dryopteris" phytogeographic region and the "Sino-Japan Pteridophytes phytogeographic region" of Eastern and Southeastern China. As the local ferns are largely Tropical Asian taxa, the fern flora of Gudoushan belongs to the South China-Indochina Peninsula - India - Malaysia distribution centre.

2. Characteristics of fern communities in Gudoushan Nature Reserve

Based on the ferns' growth form and the natural environment of Gudoushan, we placed 108 (5m x 5m) quadrats at representative sites in various habitats at altitudes between 10m and 980m to record the number of individuals and height of framework species and fern species, their coverage as well as the environmental conditions in each quadrat. Fifty-seven fern species of 22 families and 41 genera, about 60% of the total in Gudoushan, were recorded in these 108 quadrats.

的种类、数量、高度及其样方的环境条件，目测各种蕨类植物的盖度。在 108 个样方中，共记录到古斗山 22 科 41 属 57 种蕨类植物，约占该保护区蕨类植物总数的 60%。

通过对这些种类在群落中的重要值* 的计算，结果显示，古斗山蕨类植物群落中重要值较大蕨类植物主要有崇澍蕨、深绿卷柏、芒萁、乌毛蕨、金毛狗、黑桫欏、大芒萁(*Dicranopteris ampla*)、单叶新月蕨(*Pronephrium simplex*)、铁芒萁(*Dicranopteris linearis*)、扇叶铁线蕨(*Adiantum flabellulatum*)、柄叶鳞毛蕨(*Dryopteris podophylla*)、耳基卷柏(*Selaginella limbata*)、大片复叶耳蕨(*Arachniodes cavalerii*)、铺地蜈蚣(*Palhinhaea cernua*)等，这些种类均是古斗山自然保护区各类植物群落中最典型的代表，约占所有群落重要值总和的 77%，其中崇澍蕨于森林郁闭度较大、人为干扰较少的林下分布广、数量多、频度大，是古斗山蕨类植物中最重要的成分；深绿卷柏在古斗山各类灌丛、疏林和密林下比较常见；芒萁是中国热带、亚热带植被中常见的种类，常分布在光照条件较好的开阔林缘或疏林。此外，国家保护植物金毛狗、黑桫欏在群落中也占据有重要的地位，金毛狗在光照条件较好的开阔疏林中和林缘发育成单优种群落，是山谷侧坡灌木层中的重要组成成分；黑桫欏在在山谷阴湿的密林下的优势种，生物量大，数目多，在古斗山森林群落中具有重要的作用和地位。这些种类是许多群落中草本层中的优势类群，对群落的养分回圈、发育和演替及其群落结构的稳定性具有重要的生态作用。

群落的重要值是一个综合性指标，它能较全面的反映种群在群落中的地位和作用，古斗山蕨类植物群落中各种群的重要值不仅反映了各种蕨类植物在古斗山自然保护区中的实际地位和分布状况，而且为我们评价古斗山蕨类植物多样性的现状提供了直接而有效的数量依据。

Analysis of the species Important Value (IV)* of the fern species at Gudoushan revealed that *Chieniopteris harlandii*, *Selaginella doederleinii*, *Dicranopteris pedata*, *Woodwardia orientalis*, *Cibotium barometz*, *Gymnosphaera podophylla*, *D. ampla*, *Pronephrium simplex*, *D. linearis*, *Adiantum flabellatum*, *Dryopteris podophylla*, *S. limbata*, *Arachniodes cavalerii* and *Palhinhaea cernua*, etc. are of greater importance. These species are the most typical ones among each plant community in Gudoushan, together they make up for 77% of the total Important Value. Among them, *Chieniopteris harlandii* is abundant and frequent in dense and relatively undisturbed forest, and has a widespread distribution at Gudoushan. This makes it the most important component in the local fern community. *Selaginella doederleinii* is frequently seen in shrubland, open and dense forest, while *Dicranopteris pedata* is commonly found in China's tropical and subtropical vegetation, and is mainly distributed in relatively open sites at forest margins and in open forest.

The State Protected *Cibotium barometz* and *Gymnosphaera podophylla* are also very important in the fern community of Gudoushan. *Cibotium barometz* tends to form monospecific stands in relatively sunny sites in open forest and at forest margins, and is an important component in ravine hillside shrubland. *Gymnosphaera podophylla* showed high abundance and biomass in the moist and dense ravine forest, and has a significant function and importance in the local forest community. The above fern species are dominant taxa in the herb layer, which is very important to nutrient cycling in the ecosystem, and to the development, succession as well as stability of the whole plant community.

Species Important Value in the community is a comprehensive indicator, which reflects the importance and function of the species in the community. In this study, the Important Value not only reflects the importance and distribution status of each fern species but also provides a direct and effective quantitative tool for evaluating the changing status of Gudoushan's fern flora.

* 重要值 Important Value(IV)= 相对多度 Dominance(D%)+ 相对盖度 Relative coverage(C%)+ 相对频度 Relative frequency(F%)

3 · 古斗山的珍稀蕨类植物及其保护建议

在调查中发现古斗山有许多珍稀濒危蕨类植物，其中属于国家二级保护植物有：黑桫欏、大黑桫欏(*Gymnosphaera gigantea*)、粗齿桫欏(*Gymnosphaera hancockii*)和金毛狗；此外，古斗山还有许多的华南地区珍稀蕨类，如松叶蕨(*Psilotum nudum*)、小石松(*Lycopodiella caroliniana*)、福建观音座莲(*Angiopteris fokiensis*)、假芒萁(*Sticherus laevigatus*)、广西长筒蕨(*Selenodesmium siamense*)、厚叶双盖蕨(*Diplazium crassiusculum*)、毛子蕨(*Monomelangium pullingeri*)、燕尾蕨(*Cheiropleuria bicuspis*)等，其中假芒萁是我们最近发现的广东新记录蕨类植物，该种以前仅知分布在海南及以南的热带亚洲地区。

由于该保护区近年来的封山育林，次生植被发育良好，阴生或中生环境中的蕨类植物种类明显增多；但需要注意的是，当地为发展经济，大面积烧山毁林，种植桉树，严重破坏了蕨类植物及其它珍稀濒危植物的生存环境；如此下去，这里生长的大面积的黑桫欏群落等众多珍稀濒危蕨类植物将会面临严重威胁。

鸣谢

此次调查为嘉道理农场暨植物园资助的珠江口沿海地区蕨类植物多样性调查之其中一部份。严岳鸿为华南植物研究所的硕士研究生。

参考文献

1 孔宪需，1984，四川蕨类植物地理特点兼论耳蕨—鳞毛蕨植物区系. 云南植物研究，6 (1)：27-38。

2 林鹏，1986，植物群落学，上海：上海科学技术出版社，P. 1-290。

3 王伯荪等，1996，植物群落学实验手册，广州：广东高等教育出版社，P1-191。

4 武素功，1987，中国-日本蕨类植物区系的地理亲缘，云南植物研究，9 (2)：167-179。

5 吴征镒，1991，中国种子植物属的分布区类型，云南植物研究，增刊 IV，1-139。



松叶蕨 *Psilotum nudum*
古斗山保护区 Gudoushan NR

3. Rare ferns and proposed conservation work in Gudoushan

A number of rare and endangered ferns were found in this survey. Among them species under Class II National Protection included *Gymnosphaera podophylla*, *G. gigantea*, *G. hancockii* and *Cibotium barometz*. *Psilotum nudum*, *Lycopodiella caroliniana*, *Angiopteris fokiensis*, *Sticherus laevigatus*, *Selenodesmium siamense*, *Diplazium crassiusculum*, *Monomelangium pullingeri* and *Cheiropleuria bicuspis* are rare in South China, and *Sticherus laevigatus* is a species newly recorded from Guangdong, that was previously thought to be restricted to Hainan and the Tropical Asian region southward.

As a result of protection of the hillsides by the Gudoushan Nature Reserve for natural regeneration, the region now has well-developed secondary vegetation, with a remarkable increase in richness of shade-tolerant and mesophytic fern species. However, local economic development has caused a large area of hillside forest to be cleared for gum tree plantation. This destroys the habitat for ferns and other endangered plants. If this situation continues, the population of *Gymnosphaera podophylla* and other rare and endangered ferns face a serious threat in the near future.

Acknowledgement:

This study is part of the Pearl River Delta Coastal Region Fern Flora Survey sponsored by KFBG. Yan Yuehong is M.Phil candidate of South China Institute of Botany.

References cited:

1. Kung, H.S. 1984. The phytogeographical features of pteridophytes of Sichuan, China with some remarks on the "Polystichoidryopteris Flora". *Acta Bot. Yunnan.* 6(1):27-38. (In Chinese)

2. Lin, P. 1986. *Plant coenology*. Shanghai: Shanghai Science and Technology Press 1996. P1-290. (In Chinese)

3. Wang, B.S. et al 1996. *A manual on the plant coenology*. Guangzhou: Guangdong Higher Education Press. P1-191.

4. Wu, S.G. 1987. The phytogeographical affinities of pteridophytes between China and Japan. *Acta Bot. Yunnan.* 9(2):167-179. (In Chinese)

5. Wu, C.Y. 1991. The areal-types of Chinese genera of seed plants. *Acta Bot. Yunnan.* Suppl. IV. 1-13. (In Chinese)

生态旅游与环境教育

Ecotourism and Environmental Education

侯智恒 (香港大学生态学及生物多样性学系)

Billy C.H. Hau (Department of Ecology & Biodiversity, The University of Hong Kong)

「生态旅游」一词的定义首于1983年由国际自然保育联盟(IUCN)的Hector Ceballos-Lascurain界定,可能是继「可持续发展」后最被广泛滥用的概念。不少保护区管理人员均希望藉生态旅游解决经济困难,只可惜,他们对生态旅游的定义却不甚了了。很多在原始生境及保护区里开展的所谓生态旅游都不能帮助经济或生态发展,更会对自然环境造成严重损害。

很多世界各国的组织在过往十年间都对生态旅游作出不同的注释。一般来说,生态旅游须包涵五大元素。第一,发展生态旅游时,自然环境须保持完好无缺;第二,生态旅游必须对自然保育有所裨益、有所贡献;第三,应向游客提供环境教育及解说;第四,本土文化必须予以保留;第五,生态旅游的收益必须与当地社区共享。于我而言,环境教育应列为当中最重要的元素,以示生态旅游是与传统旅游有别的。

自90年代起,国内不少自然保护区已打算经营甚或已开展那些所谓生态旅游的事业,可是它们大都甚少或没有向游客提供环境教育的资料,反之,把庞大资金投资在基本建设的例子却比比皆是,如兴建多层宾馆,然而却吸引不了多少旅客前往入住,最终令投资者损失惨重。

The term "ecotourism" was first defined by Hector Ceballos-Lascurain of the IUCN in 1983. Since then it has become one of the most widely abused concepts, probably second only to sustainable development. Many conservation managers look to ecotourism to solve their financial problems. Sadly, many of them do not know what it is all about. Many so-called ecotourism developments in pristine habitats and protected areas are not economically or ecologically sustainable, and they often cause serious damage to the natural environment.



In the last ten years, different countries and institutions have developed their own definitions or interpretations of ecotourism. In general, there are five essential elements. Firstly, while developing ecotourism, the natural environment must be kept intact. Secondly, ecotourism development must

contribute to the conservation of the natural environment. Thirdly, environmental education and interpretation must be provided to the visitors. Fourthly, local culture must be preserved. Finally, the benefits generated by ecotourism must be shared with the local communities. Personally speaking, I rate environmental education as the most important element marking ecotourism from traditional tourism activities.

Since the beginning of the last decade, many nature reserves in China have developed or are planning to develop so-called ecotourism. Many such ecotourism developments provide little or no educational information to visitors. On the other hand, I have seen several examples where huge amounts of money have been invested in infrastructural

本人亦想藉此提出有关生态旅游与环境教育的几项建议:一)并非所有保护区均适合发展生态旅游,交通是当中的一大障碍,通常可于一天之内乘车往返邻近大城市的地点才可吸引足够的旅客去支持发展切实可行的生态旅游。二)确认服务对象亦很重要,这决定了甚么才是适当水平的旅游活动。现今在华南地区,甚少会碰到专家或自然学家一类的旅客,大部份到保护区的游人均来自社会的富裕阶层,期望藉著到访一些较偏远及原始的地区体验生活。虽然他们对保护生物多样性所知有限,但却能接受新的概念和见解,这正是发展环境教育的空间所在。举例说:只消在森林保护区的成熟林区内建起一条可轻松完成的远足径、增设清晰的展示牌,介绍不同动植物的故事,便能满足普通旅客的需要,实在不须花大量金钱把野生动物困在笼里供人观赏,又或是在日久失修的博物馆内设置动物标本展览。取而代之的可以是发展以树木、蕨类或蝶类为题的教育径,只须在建设初期借助少量对自然历史有专业知识的人员投入便行。而为团体旅客提供解说导赏服务自是更好不过,更可因而筹划不同种类的教育项目。国内似乎只有少数保护区设有专责教育一环的人员;其实,只要保护区有一位这样的职员,加点创意及简单的资源,便足以生态旅客带来显著的裨益。

最后,亦可以透过简明生动的展览牌或标语,把自然保育讯息传扬开去。在这方面车八岭国家级自然保护区做得尤其出色,他们鼓励旅客不仅要尊重大自然的野生动植物,更须尊重当地居民。该保护区更尝试以嘉道理农场暨植物园为蓝本,在当地发展主题教育径。

自然保护区的一项重要功用是环境教育,因为它会帮助保护区得以世代经营、日益繁盛,故此,实有必要为保护区的管理人员安排培训。香港的嘉道理农场暨植物园及世界自然基金会的米埔沼泽都是提供训练的好地方。一言以蔽之,生态旅游的发展有赖人们对环境教育的认知。

developments, such as the building of multi-storey guest houses, which then attracted very few visitors. The backers ended up losing most of their investment.

I would like to make a few suggestions for ecotourism and environmental education here. Firstly, not every nature reserve is suitable for ecotourism development. Transportation is the main barrier. Reasonably good access from large cities (probably within one day's travel by vehicle) would be needed to attract a large enough volume of visitors to support viable ecotourism. Secondly, the identity of the target tourist groups is important. It will affect what level of tourist activity is appropriate. In most parts of South China now, expert visitors such as naturalists are scarce. The majority of visitors to nature reserves are members of the wealthier public who wish to experience more remote or pristine areas. They will know little about biodiversity conservation but may be open to new ideas and concepts. There is room here for environmental education. For example, in a forest reserve an easy hiking trail in mature forests, with good signs telling different stories of the forest flora and fauna, are enough to satisfy the casual visitor. Putting a lot of money into keeping wildlife in cages, or building animal displays in poorly maintained museums, is not necessary. Instead, it may be better to develop thematic trails such as tree walks, fern walks or butterfly trails; all that is required is a little expert input on natural history at the outset. Better still, an interpretation service could be provided for group visitors. A wider variety of education programmes could then be planned. Very few reserves in China seem to have staff whose main responsibility is education; just one such officer, with imagination and some simple resources, can make a great impact on people's visits.

Finally, conservation messages can be delivered to visitors through very simple and properly designed graphic signs or slogans. In this respect Chebaling National Nature Reserve does very well, encouraging visitors to respect not only the wildlife of natural areas, but also the people who live there. Chebaling has also attempted to develop thematic trails with reference to those at Kadoorie Farm and Botanic Garden.

Environmental education is a vital function of nature reserves, which will ultimately help them survive and prosper. Training for nature reserve managers in environmental education is needed. Both Kadoorie Farm and Botanic Garden and WWF's Mai Po Marshes in Hong Kong are good places for such training courses. Above all, ecotourism depends on the recognition of this educational function.

广西大瑶山鱼类研究整理

A compilation of fish records from Dayaoshan, Guangxi

陈旻(柳州市三中路 66 号 柳州市畜牧水产局 柳州 广西 545001)
Chen Min (Liuzhou Animal Husbandry and Fishery Bureau, 66 Sanzhong Road, Liuzhou, Guangxi 545001)

大瑶山地处广西中部偏东，主体部分位于金秀县境内，面积约 2,080 平方公里，是国家科委拟定综合开发的三大重点科研山区之一¹，是仅次于云南西双版纳的我国第二大物种基因库²，2000 年 4 月被批准为国家级自然保护区³。保护区内的植物、菌类、两爬动物、鸟兽类及昆虫等动植物资源已作了详细调查⁴。但作为重要的水生脊椎动物——鱼类，至今还没有一次较完整的调查。大瑶山是广西重要的水源中心，由此发源的河流多达 25 条，有著丰富的鱼类资源，是当地主要的渔食来源。由于当地村民多采用电、毒、炸等酷渔滥捕，鱼类资源受到严重威胁。例如，在 1998 年的丰水期过后，石麦河青山村群众在一个深潭中毒鱼就获各种鱼十余担计七百多公斤。沿河村民都有捕鱼工具，每年 10 月份以前，圩场均有河鲜及鱼干出售⁵。

有记载的鱼类，如大眼黑线鲮自 1931 年定名以来仅存 1 尾标本于长江水产所⁶，本种可能已灭绝；厚唇原吸鳅被纳入《中国濒危动物红皮书》中。据悉，广西水电厅拟在下六甲建水电站⁵，这对鱼类资源将会产生重大的负面影响，鱼类种群受胁程度将会加深。

有关大瑶山鱼类的最早记载出现在《南中国鲤鱼及似鲤鱼类之研究》⁷中，该书后来增订为英文版本“*Contribution to a study of Cyprinidae of Kwangtung and adjacent provinces*”，于 1933 年至 1935 年连续发表在“*Lingnan Science Journal*”^{8,9,10,11,12}，两书共涉及大瑶山鱼类 7 种，其中包括 6 新种和 2 新属。林氏在自评这两本书时，认为采自广西

Dayaoshan Nature Reserve has an area of around 2,080 km² and is largely located in Jinxiu Yao Autonomous County, East-Central Guangxi. Once referred to as the area with the second-largest gene pool in China² (after Xishuangbanna in Yunnan), Dayaoshan is one of three mountain regions proposed by the State Science and Technology Committee for the development of scientific research¹, and was upgraded to a National Nature Reserve in April 2002³. Though comprehensive surveys have been conducted on most animal and plant groups in the Reserve⁴, this has yet to be done on the most prominent group of aquatic vertebrates – the fishes. Dayaoshan is a major watershed in Guangxi, with the sources of 25 rivers originating from the mountain range, and their fishes are a major food source for local communities. Fishing equipment is therefore common in all households. But electrofishing, poisoning and dynamiting have seriously depleted stream fish stocks. After the rainy season of 1998, residents of Qingshan Village by Shimai River caught 700 kg of fish using poison in a deep stream pool, and live and dried fish are readily available in markets by October each year⁵.

Among the documented fish species, some may have already disappeared; only one specimen of *Atrilinea macrops* has been secured since its description in 1931 at the Changjiang Institute of Hydrobiology⁶. This species is possibly extinct, while the Thick-lip Stream Loach *Protomyzon pachychilus* Chen is listed in the “*China Red Data Book of Endangered Animals*”. Apparently, Guangxi Hydroelectric Bureau will soon be constructing a hydropower station in Xialiujia⁵; this will adversely impact the fish resources of Dayaoshan and further threaten its fish populations.

The earliest record of Dayaoshan fishes can be found in “*Carp and Carp-like Fishes of Kwangtung and Adjacent Inlands*”⁷ (S.Y. Lin, 1931). This book was later revised in a series of English versions, namely “*Contribution to a study of Cyprinidae of Kwangtung and adjacent provinces*”, which were published in “*Lingnan Science Journal*” over the period 1933 to 1935^{8,9,10,11,12}.

大瑶山的标本最有价值 (Lin, 1935)。1939 年，伍献文的“*On the fishes of Li-Kiang*”一文也记载大瑶山鱼类 3 种¹³。刘建康于 1940 年将伍氏在大瑶山采到的 1 种栉鲈虎鱼(*Ctenogobius* sp.)描述为新种¹⁴。1964 年出版的《中国鲤科鱼类志(上卷)》¹⁵中，只记载大瑶山鱼类 1 种。陈宜瑜 1980 年发表在《水生生物学集刊》¹⁶上的论文，记述了大瑶山的平鳍鳅科鱼类 3 种，其中有 2 新种。1981 年出版的《广西淡水鱼类志》¹⁷共记载大瑶山鱼类 19 种，是目前记载大瑶山鱼类最多的专著。1989 年出版的《珠江鱼类志》¹⁸，记载了大瑶山鱼类 8 种，其中有 1 新种。1998 年出版的《中国动物志硬骨鱼纲鲤形目(中卷)》⁶和 2000 年出版的《中国动物志硬骨鱼纲鲤形目(下卷)》¹⁹，分别记载了大瑶山鱼类 3 种。

综合上述，正式记载大瑶山鱼类有 27 种，隶于 19 属 8 科 3 目，其中鲤科鱼类 14 种，隶于 10 属。以大瑶山为模式产地的鱼类共有 10 种，以大瑶山鱼类的模式种建立的属共有 2 个，为我国鲤科鱼类的特有属。整理结果如表一：

尽管大瑶山在 1982 年就开始建立保护区，但相对于森林和陆栖脊椎动物来说，水生生物的保护力度还不够，其资源的状况还未引起重视。为此，我们将分散在各刊物和专著中有关大瑶山鱼类的报导进行整理，以了解大瑶山鱼类研究的现状。我们呼吁有关部门组织一次抢救性的调查，以查清大瑶山鱼类的本底，为濒危物种制定有效的保护措施。为了能更好的保护大瑶山的鱼类资源，我们建议：1) 加强对鱼类资源保护的宣传力度，使之在群众心目中具有和陆栖脊椎动物同样重要的地位；2) 加强渔政管理，合理捕捞，禁止酷鱼捕捞，制定休渔时间；3) 有关部门联合起来，大力发展山区的渔业生产，解决群众吃鱼难的问题，逐步改变“靠山吃山”的生活模式，使人和自然和谐发展。

Seven fish species, including six new species and two new genera, were recorded from Dayaoshan in these publications. When reviewing his works Lin believed that specimens collected from Dayaoshan were of the greatest significance (Lin, 1935). In 1939, H.W. Wu recorded three species from Dayaoshan in his paper “*On the fishes of Li-Kiang*”¹³ and in 1940 C.K. Liu¹⁴ described a *Ctenogobius* sp. collected by H.W. Wu at Dayaoshan. “*The Cyprinid Fishes of China (Vol I)*”, published in 1964, recorded only one species at Dayaoshan¹⁵. Y.Y. Chen’s 1980 paper, published in “*Journal of Hydrobiology*”¹⁶, recorded three Homalopteridae in Dayaoshan, of which two were new to science. “*The Freshwater Fishes of Guangxi Province*”¹⁷ published in 1981 recorded 19 Dayaoshan fish species, the highest total to date. “*The Fishes of Zhujiang River*”¹⁸ published in 1989 documented eight species at Dayaoshan, including one new species. “*Fauna Sinica Osteichthyes Cypriniformes*” volumes II⁶ and III¹⁹ each recorded three fish species from Dayaoshan.

To conclude, 27 fish species in 19 genera, eight families and three orders have been recorded from Dayaoshan, including 14 species of Cyprinidae in 10 genera. Dayaoshan is the type locality for 10 species, including type species of two cyprinid genera endemic to China. Results of this literature review are shown in Table 1.

Despite the establishment of Dayaoshan Nature Reserve in 1982, very little attention has been paid to the status and conservation of aquatic organisms. We call upon relevant departments to urgently organize surveys collecting baseline information on fish resources of Dayaoshan, and formulate effective conservation measures for endangered species. To better preserve the fish resources in Dayaoshan, we make the following recommendations:

- 1) Step up education on fish conservation, so as to raise the profile of freshwater fishes to the same significance as terrestrial vertebrates.
- 2) Strengthen development and administration of fisheries. Over-exploitation should be strictly prohibited and a “no-fishing” period should be enacted.
- 3) Unite the efforts of departments involved in mountain fishery development to solve the problem of providing sufficient food fish. This could hopefully reduce the dependence of mountain people on wild stocks, and help achieve sustainability.

表一 整理文献所得的大瑶山鱼类记录 (“[]” 内为编者依伍汉霖等， 1999²⁰ 注入最新学名及中文名，分类系统则根据 Nelson， 1994²¹)。 “@” 为参考文献的序号
Table 1 Historic records of fish species in Dayaoshan. (“[]”= latest nomenclature, inserted by the editors, follows Wu *et al.*, 1999²⁰; sequence of families follows Nelson, 1994²¹, “@” = reference numbers) .

种名 Species	文献 @ 记录出处 Reference @ for the records
宽鳍鲮 <i>Zacco platypus</i> (Temminck et Schlegel)	17
瑶山鲤 <i>Yaoshanicus arcus</i> Lin	6：7：11：13：15：17：18
大眼黑线鲮 <i>Atrilinea macrops</i> (Lin)	6：7：12
唇鲮 <i>Hemibarbus labeo</i> (Pallas)	17
花鲮 <i>Hemibarbus maculatus</i> Bleeker	17
花棘鲮 <i>Hemibarbus umbrifer</i> (Lin)	6：7：10
麦穗鱼 <i>Pseudorasbora parva</i> (Temminck et Schlegel)	17
条纹小鲃 <i>Puntius semifasciolatus</i> (Günther)	17
厚唇光唇鱼 <i>Acrossocheilus labiatus</i> (Regan)	17：18
带半刺光唇鱼 <i>Acrossocheilus hemispinus cinctus</i> (Lin)	7：8
粗须白甲鱼 <i>Onychostoma barbata</i> (Lin)	7：8：17
台湾白甲鱼 <i>Onychostoma barbatula</i> (Pellegrin)	8
四须盘鮡 <i>Discogobio tetrabarbatus</i> Lin	7：9：17
鲫 <i>Carassius auratus</i> (Linnaeus)	17
泥鳅 <i>Misgurnus anguillicaudatus</i> (Cantor)	17
平头岭鳅 <i>Oreonectes platycephalus</i> Günther	18
线纹原缨口鳅 <i>Vanmanenia lineata</i> (Fang)	13：16：18：19
平舟原缨口鳅 <i>Vanmanenia pingchowensis</i> (Fang)	13：17
厚唇原吸鳅 <i>Protomyzon pachychilus</i> Chen	16：18：19
中华原吸鳅 <i>Protomyzon sinensis</i> Chen	16：17：18：19
方氏品唇鳅[珠江拟腹吸鳅] <i>Pseudogastromyzon (Labigastromyzon)fangi</i> (Nichols)	17
黄鲢 <i>Monopterus albus</i> (Zuiew)	17
石鲮 <i>Siniperca whiteheadi</i> (Boulenger) [中国少鳞鲮 <i>Coreoperca whiteheadi</i>]	17：18
伍氏栉鲈虎鱼 <i>Ctenogobius wui</i> Liu [溪吻鲈虎鱼 <i>Rhinogobius duospilus</i>]	14：17
瑶山栉鲈虎鱼 <i>Ctenogobius yaoshanensis</i> Luo [瑶山吻鲈虎鱼 <i>Rhinogobius yaoshanensis</i>]	18
叉尾斗鱼 <i>Macropodus opercularis</i> (Linnaeus)	17
月鳢 <i>Channa asiatica</i> (Linnaeus)	17

参考文献 References

1

Science and Technology Daily, 11 June 1998, P. 1. 科 技 日 报 1998 年 6 月 11 日)

2

李晓南，1984。前言，《广西大瑶山自然资源考察》，1988，1-2 页。上海，上海学林出版社，
Li, X.N., 1984. Forward. Pp. 1-2. In Dayaoshan Natural Resources Comprehensive Survey Team (ed.), 1988. *Natural Resources Survey of Dayaoshan, Guangxi*. Xuelin Press, Shanghai. 508pp. (In Chinese.)

3

徐革生，蒋卫民。《广西年鉴 2001》，249 页。广西年鉴社。Xu, G.S. and Jiang, W.M., 2001. Dayaoshan Nature Reserve. P. 249. In Mo, X. (ed.) *Guangxi Yearbook 2001*. Guangxi Yearbook Publishing House, Guangxi. (In Chinese.)

4

大瑶山自然资源综合考察队，1988，《广西大瑶山自然资源考察》。上海学林出版社，508 页。
Dayaoshan Natural Resources Comprehensive Survey Team, 1988. *Natural Resources Survey of Dayaoshan, Guangxi*. Xuelin Press, Shanghai. 508pp. (In Chinese.)

5

周解、李咏梅，1999，金秀县下六甲水电站渔业环境调查。《广西水产科技》，(2): 30-32 (内部资料)
Zhou, X. and Li, Y.M. 1999. Study of fishery resources of Xialiujia hydropower station in Jinxiu County. *Guangxi Aquatic Products and Technology* (2): 30-32 [Internal information] (In Chinese.)

6

陈宜瑜 (主编)，1998，《中国动物志硬骨鱼网鲢形目 (中卷)》。北京：科学出版社
Chen, Y.Y.(ed.), 1998. *Fauna Sinica: Osteichthyes - Cypriniformes II*. Beijing: Science Press. (In Chinese with English summary.)

7

林书颜，1931，南中国鲤鱼及似鲤鱼类之研究，水产丛书第一号，广东建设厂水产试验场刊印
Lin, S.Y. 1931. *Carp and Carp-like Fishes of Kwangtung and Adjacent Inlands*. Aquatic Product Development Series No. 1. Kwangtung Aquatic Product Development Research Centre. (In Chinese.)

8

Lin, S.Y. 1933. Contribution to a study of Cyprinidae of Kwangtung and adjacent provinces. *Lingnan Science Journal* 12(2): 197-215.

9

Lin, S.Y 1933. Contribution to a study of Cyprinidae of Kwangtung and adjacent provinces. *Lingnan Science Journal* 12(4): 489-505.

10

Lin, S.Y 1934. Contribution to a study of Cyprinidae of Kwangtung and adjacent provinces. *Lingnan Science Journal* 13(1): 5-13.

11

Lin, S.Y 1934. Contribution to a study of Cyprinidae of Kwangtung and adjacent provinces. *Lingnan Science Journal* 13(3): 437-455.

12

Lin, S.Y 1935. Contribution to a study of Cyprinidae of Kwangtung and adjacent provinces. *Lingnan Science Journal* 14(4): 651-663.

13

Wu, H.W., 1939. On the fishes of Li-Kiang. *Sinensia* 10(1-6): 92-142.

14

Liu, C.K., 1940. On two new fresh-water gobies. *Sinensia* 11 (3-4): 213-219.

15

伍献文 (主编)，1964，《中国鲤科鱼类志 (上卷)》。上海：上海科学技术出版社

16

陈宜瑜，1980，中国平鳍鳅科鱼类系统分类研究 II。腹吸鳅亚科鱼类的分类。水生生物学集刊。7(1)：95-120
Chen, Y.Y., 1980. Systematic studies on the fishes of the family of Homalopteridae of China II. Subfamily Gastromyzoninae. *Acta Hydrobiol. Sinica* 7: 95-120. (In Chinese.)

17

广西壮族自治区水产研究所和中国科学院动物研究所，1981，《广西淡水鱼类志》。南宁：广西人民出版社
Institute of Hydrobiology of Guangxi Zhuang Autonmous Region and Institute of Zoology of CAS, 1981. *The Freshwater Fishes of Guangxi Province*. Nanning: Guangxi People's Press. (In Chinese.)

18

郑慈英 (主编)，1989，《珠江鱼类志》。北京：科学出版社
Zheng, C.Y. ed., 1989. *The Fishes of Zhujiang River*. Beijing: Science Press. (In Chinese with English summary.)

19

乐佩琦 (主编)，2000，《中国动物志硬骨鱼网鲢形目(下卷)》。北京：科学出版社
Yue, P.Q. ed., 2000. *Fauna Sinica: Osteichthyes - Cypriniformes III*. Beijing: Science Press. (In Chinese with English summary.)

20

伍汉霖、邵广昭及赖春福，1999，《拉汉世界鱼类名典》。台湾：水产出版社，1,028 页
Wu, H.L., Shao, K.T. and Lai, C.F., 1999. *Latin-Chinese Dictionary of Fishes' Names*, Taiwan, Sueichan Press. (In Chinese and English.)

21

Nelson, J.S., 1994. *Fishes of the World*, 3rd Edition. John Wiley & Sons, New York, 600 pp.

嘉道理农场暨植物园快速生物多样性调查于 广西东部大瑶山国家级自然保护区的

淡水鱼类记录

Notes on freshwater fishes recorded in Dayaoshan National Nature Reserve, East Guangxi during KFBG rapid biodiversity survey

陈肇乐(嘉道理农场暨植物园)
CHAN Pui Lok Bosco (Kadoorie Farm & Botanic Garden)

本文旨在补充大瑶山鱼类的资料，以辅助本期《森林脉搏》内陈旻的文章¹。陈旻(2003)收集文献记录，共整理出27个分布于大瑶山的鱼类物种。本园的华南生物多样性研究队，于1998年8月在大瑶山国家级自然保护区进行了快速生物多样性调查，录得最少36个鱼类物种²。队员当时在六个地点考察鱼类资源(表1)，包括朴全(海拔575-635公尺)、金秀(535-570公尺)、林海山庄(960-1025公尺)、罗香(170-355公尺)、圣堂山(山脚的滴水河，415-535公尺)和香炉山(850-890公尺)。鱼类多样性最丰富的采集点是罗香，共录得最少21个物种。在大瑶山地区最常录得的物种是平头岭鳅 *Oreonectes platycephalus* (图1)、马口鱼 *Opsariichthys bidens*、半刺光唇鱼 *Acrossocheilus hemispinus*、无斑南鳅 *Schistura incerta* 和珠江拟腹吸鳅 *Pseudogastromyzon fangi*。录得的鱼类中还包括厚唇原吸鳅 *Protomyzon pachychilus* (见图2) 和中华原吸鳅 *P. sinensis*；其中后者是西江水系的特有种，而前者更只见于大瑶山清澈的森林小溪³。部份标本，尤其是鲈虎鱼亚目的个体，未能根据现有文献鉴定出其种名。这些标本已交由有关专家检定，或许在科研或保育方面甚具价值。

本研究队录得的鱼类物种中，陈旻(2003)文中并无列出下列物种：马口鱼、美丽小条鳅 *Micronemacheilus pulcher*、横纹南鳅 *Schistura fasciolata*、无斑南鳅、白边拟鲿 *Pseudobagrus albomarginatus*、斑鲿 *Mystus guttatus*、胡鲶 *Clarias fuscus*、隐鳍鲶属一种 *Pterocryptis* sp. 1、吉氏隐鳍鲶 *Pterocryptis gilberti*、福建纹胸鮡

This short article aims to provide information on the fish fauna of Dayaoshan to supplement the literature review by Chen Min in this issue of *Living Forests*¹. Chen (2003) listed 27 species of fishes which have been documented from Dayaoshan. In August 1998, KFBG's South China Biodiversity Team conducted a rapid biodiversity survey in Dayaoshan National Nature Reserve and recorded at least 36 species of fishes². Fish sampling was conducted at six localities: Poquan (575-635 m asl), Jinxiu (535-570 m), Linhaishanzhuang (Linhai Villa, 960-1025 m), Luoxiang (170-355 m), Shengtangshan (Dishui River at the foothills of the mountain, 415-535 m), and Xianglushan (850-890 m) (Table 1). The most species-rich locality surveyed was Luoxiang with at least 21 fish species. Species most frequently encountered in the Dayaoshan area were *Oreonectes platycephalus* (Figure 1), *Opsariichthys bidens*, *Acrossocheilus hemispinus*, *Schistura incerta*, and *Pseudogastromyzon fangi*. Among other species found were *Protomyzon pachychilus* (Figure 2) and *P. sinensis*; the latter is endemic to the Xijiang (West River) drainage system while the former is known only from clean forest streams in Dayaoshan³. A number of specimens collected, especially those in the suborder Gobioidi, cannot be identified to specific level from the existing literature. These specimens are being examined by respective specialists and may prove to be of scientific and conservation interest.

The following species recorded in our survey are not listed by Chen (2003): *Opsariichthys bidens*, *Micronemacheilus pulcher*, *Schistura fasciolata*, *S. incerta*, *Pseudobagrus albomarginatus*, *Mystus guttatus*, *Clarias fuscus*, *Pterocryptis* sp.1., *Pterocryptis gilberti*, *Glyptothorax fukiensis fukiensis*, *Mastacembelus*

Glyptothorax fukiensis fukiensis、大刺鳅 *Mastacembelus armatus*、沙塘鳢属一种 *Odontobutis* sp.1、侧扁小黄鲈 *Micropercops compressocephalus*，及一些吻鲈虎鱼属 *Rhinogobius* spp.的物种。除白边拟鲿、隐鳍鲶属一种和数个未鉴定的吻鲈虎鱼属物种外，大部份上述物种都广布于华南地区；以往大瑶山缺乏这些物种的记录，正显示出华南地区需要进行更多鱼类研究，并把有关资料传送给更多读者。此外，本园的调查并未发现以下10个曾见于大瑶山的物种，分别是大眼黑线鲷 *Atrilinea macrops*、唇鲿 *Hemibarbus labeo*、花鲿 *H. maculatus*、花棘鲿 *H. umbrifer*、麦穗鱼 *Pseudorasbora parva*、厚唇光唇鱼 *Acrossocheilus labiatus*、台湾白甲鱼 *Onychostoma barbatulus*、线纹原缨口鳅 *Vanmanenia lineata*、黄鲈 *Monopterus albus* 和叉尾斗鱼 *Macropodus opercularis*。其中大眼黑线鲷是大瑶山地区的特有种，而线纹原缨口鳅则是西江水系的特有种^{4,5}。事实上，只要了解大瑶山的地势及广大面积，实不难理解为何本园的快速调查未能发现当中某些物种。另外，以往的记录可能有误，如厚唇光唇鱼的广西记录已被认为误鉴，这物种可能不产于广西(见乐佩琦，2000)。若把两组结果结合，在大瑶山录得的鱼类物种共45个(不包括疑问种厚唇光唇鱼)。

大瑶山国家级自然保护区总面积达2,022平方公里^{2,6}，故此鱼类的总体多样性颇高；但破坏性强的捕鱼方法却使部份河溪深受人类影响。经本园队员考察的大部份溪流都显示过度捕捞的迹象(如鱼类种群密度低，也缺乏大型个体)。村民亦报称常有非法的捕鱼活动，严重影响溪流生态；尤其是经常使用石灰毒杀水生生物，于某些考察地点已带来不可逆转的破坏。例如水中和溪谷生境都良好的香炉山，经过详细考察只录得两个鱼类物种。

若为大瑶山众多的小溪和河流进行全面性鱼类调查，必然会发现更多具科研或保育价值的物种。本园已颁发了2002年度的生物多样性奖学金予中国科学院昆明动物研究所的孔德平先生，他将会用大瑶山的鱼类多样性作其博士研究的课题。假如要保存大瑶山丰富的鱼类资源，现有的捕鱼和水资源管理模式都应被严格地重新评估并加以控制。

armatus, *Odontobutis* sp., *Micropercops compressocephalus*, and a number of goby species in the genus *Rhinogobius*. Most of these (except *Pseudobagrus albomarginatus*, and the unidentifiable species in the genus *Pterocryptis* and the suborder Gobioidi) are widespread in South China; the lack of previous records from Dayaoshan demonstrates a general need for more ichthyological study in South China, and for subsequent dissemination of information to a wider audience. On the other hand, ten species previously reported from Dayaoshan were not found during our survey; they are *Atrilinea macrops*, *Hemibarbus labeo*, *H. maculatus*, *H. umbrifer*, *Pseudorasbora parva*, *Acrossocheilus labiatus*, *Onychostoma barbatulus*, *Vanmanenia lineata*, *Monopterus albus*, and *Macropodus opercularis*. *Atrilinea macrops* is endemic to the Dayaoshan area and *Vanmanenia lineata* is endemic to the Xijiang (West River) drainage system^{4,5}. In view of the terrain and sheer size of Dayaoshan, it is no surprise that species were 'missing' from KFBG's rapid survey. But some past records require verification, including *Acrossocheilus labiatus* which is not confirmed from Guangxi and of which previous records have been treated as misidentifications (see Yue, 2000). Combining the two datasets yields a total of 45 fish species currently known from Dayaoshan (excluding the dubious record of *Acrossocheilus labiatus*).

Dayaoshan National Nature Reserve covers a large area (2,022 km^{2,6}) and the high overall fish diversity masks the high level of human impact in some areas due to very destructive fishing methods. Most streams we visited showed symptoms of over-fishing (e.g. low population density and a lack of large-sized individuals), and villagers reported frequent illegal fishing activities which are detrimental to stream life. In particular the common use of lime to poison streams has caused irreversible damage at some localities visited. Intensive sampling at Xianglushan, for example, yielded only two fish species although the stream and riparian habitats were in relatively good condition.

A comprehensive fish inventory of the many brooks and rivers at Dayaoshan would doubtless reveal more species of scientific/conservation value; this year one of KFBG's Biodiversity Studentships has been awarded to Mr. Kong Deping of Kunming Institute of Zoology, CAS, to conduct a Ph.D. study on the fish fauna of Dayaoshan. Fishing and water resource management practices must be critically assessed and controlled if the diverse fish fauna of Dayaoshan is to be preserved.

表 1. 嘉道理农场暨植物园华南生物多样性研究队于 1998 年在大瑶山录得的鱼类物种 (学名及中文名依伍汉霖等，1999¹；“*”表示学名依潘炯华，1991⁸，而科的分类系统则根据 Nelson，1994⁹)。

Table 1. Fish species recorded at Dayaoshan in 1998 by the KFBG South China Biodiversity Team. (Nomenclature follows Wu et al. 1999¹; “*” = nomenclature follows Pan, 1991²). Sequence of families follows Nelson (1994)⁹.

物种 Species	采集点 Locality
宽鳍鲢 <i>Zacco platypus</i>	罗香 (Luoxiang)
马口鱼 <i>Opsariichthys bidens</i>	朴全 (Poquan)、罗香 (Luoxiang)、圣堂山 (Shengtangshan)
嵴山鲤 <i>Yaoshanicus arcus</i>	林海山庄 (Linhaishanzhuang)、罗香 (Luoxiang)
长体小鰾鮡 <i>Microphysogobio elongata</i>	罗香 (Luoxiang)
条纹小鰾 <i>Puntius semifasciolatus</i> *	罗香 (Luoxiang)
侧条光唇鱼 <i>Acrossocheilus parallens</i>	香炉山 (Xianglushan)、林海山庄 (Linhaishanzhuang)
半刺光唇鱼 <i>Acrossocheilus hemispinus</i> *	朴全 (Poquan)、罗香 (Luoxiang)、圣堂山 (Shengtangshan)
粗须白甲鱼 <i>Onychostoma barbata</i>	圣堂山 (Shengtangshan)
四须盘鮡 <i>Discogobio tetrabarbatus</i>	圣堂山 (Shengtangshan)
鲫 <i>Carassius auratus</i>	罗香 (Luoxiang)
泥鳅 <i>Misgurnus anguillicaudatus</i>	朴全 (Poquan)、罗香 (Luoxiang)
美丽小条鳅 <i>Micronemacheilus pulcher</i>	罗香 (Luoxiang)
平头岭鳅 <i>Oreonectes platycephalus</i>	香炉山 (Xianglushan)、林海山庄 (Linhaishanzhuang)、朴全 (Poquan)、罗香 (Luoxiang)、圣堂山 (Shengtangshan)
横纹南鳅 <i>Schistura fasciolata</i>	罗香 (Luoxiang)、圣堂山 (Shengtangshan)
无斑南鳅 <i>Schistura incerta</i>	朴全 (Poquan)、罗香 (Luoxiang)、圣堂山 (Shengtangshan)
平舟原缨口鳅 <i>Vanmanenia pingchowensis</i>	朴全 (Poquan)、圣堂山 (Shengtangshan)
厚唇原吸鳅 <i>Protomyzon pachychilus</i>	林海山庄 (Linhaishanzhuang)
中华原吸鳅 <i>Protomyzon sinensis</i>	罗香 (Luoxiang)、圣堂山 (Shengtangshan)
珠江拟腹吸鳅 <i>Pseudogastromyzon fangi</i>	林海山庄 (Linhaishanzhuang)、朴全 (Poquan)、圣堂山 (Shengtangshan)
白边拟鲿 <i>Pseudobagrus albomarginatus</i> *	圣堂山 (Shengtangshan)
斑鲮 <i>Mystus guttatus</i>	圣堂山 (Shengtangshan)
隐鳍鲶属一种 <i>Pterocryptis</i> sp.1	罗香 (Luoxiang)、圣堂山 (Shengtangshan)
吉氏隐鳍鲶 <i>Pterocryptis gilberti</i>	朴全 (Poquan)
福建纹胸鮡 <i>Glyptothorax fukiensis fukiensis</i>	罗香 (Luoxiang)、圣堂山 (Shengtangshan)
须鲶 <i>Clarias fuscus</i>	罗香 (Luoxiang)
大刺鲶 <i>Mastacembelus armatus</i>	罗香 (Luoxiang)
中国少鳞鳊 (石鳊) <i>Coreoperca whiteheadi</i>	圣堂山 (Shengtangshan)
沙塘鳢属一种 <i>Odontobutis</i> sp.1	罗香 (Luoxiang)

物种 Species	采集点 Locality
侧扁小黄黝鱼 <i>Micropercops compressocephalus</i>	罗香 (Luoxiang)
溪吻鲈虎鱼 <i>Rhinogobius duospilus</i>	圣堂山 (Shengtangshan)
吻鲈虎属 sp.1 <i>Rhinogobius</i> sp.1	罗香 (Luoxiang)、圣堂山 (Shengtangshan)
吻鲈虎属 sp.2 <i>Rhinogobius</i> sp.2	圣堂山 (Shengtangshan)
吻鲈虎属 sp.3 <i>Rhinogobius</i> sp.3	圣堂山 (Shengtangshan)
吻鲈虎属 sp.4 <i>Rhinogobius</i> sp.4	圣堂山 (Shengtangshan)
吻鲈虎属 sp.5 <i>Rhinogobius</i> sp.5	圣堂山 (Shengtangshan)
月鳢 <i>Channa asiatica</i>	罗香 (Luoxiang)



图 1. 平头岭鳅 *Oreonectes platycephalus* 为广泛分布于大瑶山的山溪鱼类
Figure 1. *Oreonectes platycephalus*, a mountain loach occurring widely at Dayaoshan

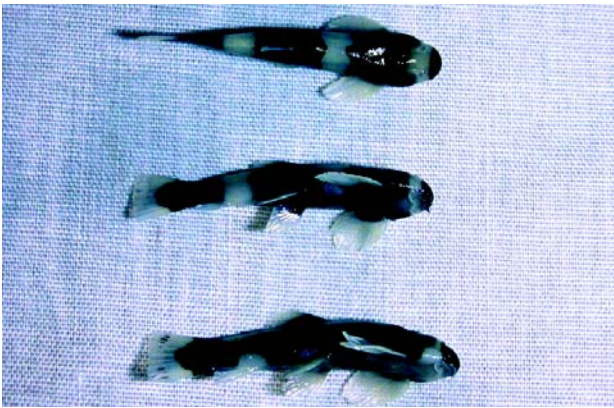


图 2. 厚唇原吸鳅 *Protomyzon pachychilus* 的新鲜标本，本种只见于大瑶山森林间的清澈小溪
Figure 2. Freshly preserved specimens of *Protomyzon pachychilus*, a torrent loach known only from clean forest streams at Dayaoshan

参考文献 References

1 陈旻 2003. 广西大瑶山鱼类研究整理.。《森林脉搏》第 5 期：26 至 29 页。
Chen M., 2003. A compilation of fish records from Dayaoshan, Guangxi. *Living Forests* 5: 26-29.

2 Kadoorie Farm and Botanic Garden, 2002. *Report of Rapid Biodiversity Assessments at Dayaoshan National Nature Reserve, East Guangxi, China, 1998 and 2001*. South China Forest Biodiversity Survey Report Series No. 18. KFBG, Hong Kong SAR, ii + 45 pp.

3 乐佩琦、陈宜瑜（主编），1998。《中国濒危动物红皮书 - 鱼类》。北京，科学出版社。
Yue, P.Q. and Chen, Y.Y. 1998. *China Red Data Book of Endangered Animals – Pisces*. Beijing: Science Press. (In Chinese and English)

4 陈宜瑜等（主编），1998。《中国动物志 - 硬骨鱼纲 - 鲤形目(中卷)》。北京，科学出版社。
Chen Y. Y. et al. 1998. *Fauna Sinica: Osteichthyes – Cypriniformes II*. Beijing: Science Press. (In Chinese with English summary)

5 乐佩琦等（主编），2000。《中国动物志 - 硬骨鱼纲 - 鲤形目(下卷)》。北京，科学出版社。
Yue P. Q. et al. 2000. *Fauna Sinica: Osteichthyes – Cypriniformes III*. Beijing: Science Press. (In Chinese with English summary)

6 Mackinnon, J., Sha M., Cheung, C., Carey, G., Zhu X. and Melville, D. 1996. *A Biodiversity Review of China*. WWF International, Hong Kong.

7 伍汉霖、邵广昭、赖春福（主编），1999。《拉汉世界鱼类名典》。台湾，水产出版社。
Wu, H. L., Shao, K. T. and Lai, C. F. (eds.) 1999. *Latin-Chinese Dictionary of Fishes' Names*. Taiwan: Sueichan Press. (In Chinese and English)

8 潘炯华（主编），1991。《广东淡水鱼类志》。广东，广东科技出版社。
Pan J. H. (ed) 1991. *The Freshwater Fishes of Guangdong Province*. Guangdong: Guangdong Science and Technology Press. (In Chinese)

9 Nelson, J. S., 1994. *Fishes of the World*, 3rd edition. New York: John Wiley & Sons.



华南生物多样性研究队使用 红外线自动照相机的初步结果

Preliminary results of using infrared auto-trigger camera by the South China Biodiversity Team

陈肇乐(嘉道理农场暨植物园)
Chan Pui Lok Bosco (Kadoorie Farm & Botanic Garden)

在第四期《森林脉搏》中〈短讯〉一栏内，我们曾呼吁研究人员多使用红外线自动照相机来调查哺乳类动物，文中引述外国研究员成功使用红外线照相机考察行踪隐秘猫科物种的经验。

在2002年初，本研究队引入了一批红外线自动照相机，希望这种新技术能帮助我们更有效地了解华南地区兽类物种的状况和生态。我们先在本园的山坡小试牛刀，在短短一个月内就拍摄到已知出现于本园11种兽类（不包括翼手目、鼯鼠科和鼠科）中的7种（图1-3）。

2002年5月份，我们终有机会在华南的野外考察中使用这种兽类调查技术。在广西林业局及广西岑王老山自然保护区的大力支持下，我们在短短的两星期内，在广西岑王老山自然保护区拍到多种兽类和两种鸟类的照片，包括斑林狸（见封面照）、豹猫、黄腹鼬、红颊长吻松鼠、白鹇、以及数种鼠科动物（图4-6）。

红外线照相机这种新的野生动物调查技术不单效率高、可靠性强，还全天候二十四小时工作，能大大减少对野外工作的人员及技术需求。另外，这种全自动的野外考察工具亦把研究人员对各种温血动物的采集要求和骚扰减至最低，可说是一种全无破坏性的考察技术。我

In the "Short Notices" of "Living Forest" 4, we called for increased application of infrared auto-trigger cameras in conducting mammal surveys, and reported the successful experience by overseas researchers in surveying elusive cat species by camera-trapping.

In early 2002, KFBG acquired a batch of infrared auto-trigger cameras, in the hope that this new technique could collect more information on the conservation status and ecology of mammals in the South China region. We first tested it out on the hillsides of KFBG, where photographs of 7 out of the 11 mammal species (excluding bats, shrews and rats) known from our hillsides were captured in less than a month (Fig. 1-3).

In May 2002, we had the opportunity to use this mammal survey technique during a field survey in South China. With the support of Guangxi Forestry Department and Cenwanglaoshan Nature Reserve, we successfully captured photographic images of several mammal species and two bird species in a two-week operation time; including Spotted Linsang (see cover photograph), Leopard Cat, Yellow-bellied Weasel, Asian Red-cheeked Squirrel, Silver Pheasant and several rat species (Fig. 4-6).

The all-weather infrared camera is not only highly efficient and reliable, but also operates 24 hours daily; thus application of this technique greatly reduces the labour and technical requirements in field research. Besides, this fully-automatic survey tool minimises the needs for disturbance and collection of warm-blooded animals, and can be considered a completely harmless field research method. We encourage fellow workers

们鼓励大家以后能多利用这技术去考察、研究华南地区内的各种兽类，为保护这些物种提供更全面的数据。

to use camera-trapping in mammal surveys and research in the South China region, to provide more comprehensive data as a basis for conserving these species.



图1. 豹猫 (*Felis bengalensis*) 本园山坡
Fig. 1. Leopard Cat (*Felis bengalensis*) KFBG hillside



图2. 赤麂 (*Muntiacus muntjak*) 本园山坡
Fig. 2. Indian Muntjac (*Muntiacus muntjak*) KFBG hillside



图3. 豪猪 (*Hystrix hodgsoni*) 本园山坡
Fig. 3. Chinese Porcupine (*Hystrix hodgsoni*) KFBG hillside



图4. 鼠类物种 广西岑王老山
Fig. 4. Rat species Cenwanglaoshan, Guangxi



图5. 红颊长吻松鼠 (*Dremomys rufigenis*) 广西岑王老山
Fig. 5. Red-cheeked Squirrel (*Dremomys rufigenis*) Cenwanglaoshan, Guangxi



图6. 白鹇 (*Lophura nycthemera*) 广西岑王老山
Fig. 6. Silver Pheasant (*Lophura nycthemera*) Cenwanglaoshan, Guangxi



广东省濒危的两栖动物(包括国家公布的物种)

Endangered amphibians in Guangdong (including the species protected by the state)

黎振昌¹
Li Zhenchang¹

刘惠宁²
Michael Lau²

肖智¹
Xiao Zhi¹

据作者多年在广东调查及资料显示，广东目前已发现的两栖动物共有 61 种。由于物种自身原因及受人为活动和自然灾害等因素的影响，造成目前广东两栖动物处于濒危的达 21 种，具体物种和它们在广东的分布及现况如下：

According to published information and surveys conducted by the writers, a total of 61 amphibians have been recorded in Guangdong. However, due to the species' intrinsic factors, human activities and natural hazards, 21 of them are now threatened. Their current national status and distribution in Guangdong are as follows:

版纳鱼螈 (<i>Ichthyophis bannanicus</i>) <i>Ichthyophis bannanicus</i>	濒危*，目前只在鼎湖山、茂名及恩平发现，种群个数少。 Endangered*. Presently known only from Dinghushan, Maoming and Enping. Small wild population.
大鲵 (<i>Andrias davidianus</i>) <i>Andrias davidianus</i>	极危种*，II 级**，省内只分布在北部山区，野外极少。 Critically Endangered*. Category II**. Distributed only in northern mountainous areas in Guangdong. Very small wild population.
潮汕蝾螈 (<i>Cynops orphicus</i>) <i>Cynops orphicus</i>	广东特有种，分布在粤东的揭西海拔 640m 的大洋及潮州凤凰山。 Endemic to East Guangdong. Found in Dayang (at an altitude of 640m), Jiexi and Fenghuangshan in Chaozhou.
细痣疣螈 (<i>Echinotriton asperrimus</i>) <i>Echinotriton asperrimus</i>	II 级**，分布在南岭及信宜大雾岭。 Category II**. Recorded in Nanling and at Dawuling in Xinyi.
黑斑肥螈 (<i>Pachytriton brevipes</i>) <i>Pachytriton brevipes</i>	省内分布在南岭，自然种群个数少。 Recorded in Nanling. Small wild population.
无斑肥螈 (<i>Pachytriton labiatus</i>) <i>Pachytriton labiatus</i>	省内分布在南岭及石门台，自然种群个数少。 Recorded in Nanling and Shimentai. Small wild population.
中国瘰螈 (<i>Paramesotriton chinensis</i>) <i>Paramesotriton chinensis</i>	主要分布在沿海的惠州、新会、台山及龙门，自然种群个数少。 Mainly distributed in coastal regions including Huizhou, Xinhui, Taishan and Longmen. Small wild population.

濒危的两栖动物

香港瘰螈 (<i>Paramesotriton hongkongensis</i>) <i>Paramesotriton hongkongensis</i>	分布在沿海的深圳、台山、新会等。 Recorded in coastal regions including Shenzhen, Taishan and Xinhui.
淡肩角蟾 (<i>Megophrys boettgeri</i>) <i>Megophrys boettgeri</i>	分布在潮州凤凰山，自然种群个数少。 Recorded in Fenghuangshan in Chaozhou. Small wild population.
挂墩角蟾 (<i>Megophrys kuatunensis</i>) <i>Megophrys kuatunensis</i>	分布在南岭，南昆山、黑石顶、自然种群个数少。 Recorded in Nanling, Nankunshan and Heishiding. Small wild population.
白颌大角蟾 (<i>Megophrys lateralis</i>) <i>Megophrys lateralis</i>	曾在南岭有记录，近年无发现。 Reported from Nanling. No record in recent years.
小角蟾 (<i>Megophrys minor</i>) <i>Megophrys minor</i>	分布在粤西广宁、沿海的深圳和南澳县。 Recorded in Guangning, West Guangdong and coastal regions including Shenzhen and Nanao County.
崇安髭蟾(即瑶山髭蟾) (<i>Vibrissaphora liui</i>) <i>Vibrissaphora liui</i>	分布在南岭和石门台，自然种群个数少。 Distributed in Nanling and Shimentai. Small wild population.
隐耳蟾蜍 (<i>Bufo cryptotympanicus</i>) <i>Bufo cryptotympanicus</i>	目前仅发现于南昆山。 Only found in Nankunshan.
华西蟾蜍 (<i>Bufo andrewsi</i>) <i>Bufo andrewsi</i>	分布在南岭及大雾岭海拔 600m 以上的山区，因被大量捕捉而数量锐减。 Recorded in mountain areas above 600m in Dawuling and Nanling. Over-collecting has caused a sharp decline in numbers.
三港雨蛙 (<i>Hyla sanchiangensis</i>) <i>Hyla sanchiangensis</i>	只分布在连州清江，自然种群个数少。 Only distributed in Qingjiang in Lianzhou. Small wild population.
圆舌浮蛙 (<i>Occidozyga martensii</i>) <i>Occidozyga martensii</i>	分布在粤西，自然种群个数少。 Recorded in West Guangdong. Small wild population.
棘胸蛙 (<i>Paa spinosa</i>) <i>Paa spinosa</i>	易危种*，广泛分布，因被大量捕捉而数量减。 Vulnerable*. Widely distributed. Over-collecting has caused a sharp decline in numbers.
小棘蛙 (<i>Paa exilispinosa</i>) <i>Paa exilispinosa</i>	易危种*，分布较广，因被大量捕捉而数量减。 Vulnerable*. Widely distributed. Over-collecting has caused a sharp decline in numbers.
绿臭蛙 (<i>Rana margaretae</i>) <i>Rana margaretae</i>	分布在新丰云髻山、罗浮山及粤西，自然种群个数少。 Distributed in Yunjishan in Xinfeng, Luofushan and West Guangdong. Small wild population.
虎纹蛙 (<i>Rana rugulosa</i>) <i>Rana rugulosa</i>	II 级**，现已有人工养殖，但在野外仍被捕捉。 Category II**. Commercial farms exist but still being collected from the wild.

* 自《中国濒危动物红皮书》

* Cited from China Red Data Book of Endangered Animals

1. 广州华南师范大学生物系 Department of Biology, South China Normal University

2. 香港嘉道理农场暨植物园 Kadoorie Farm & Botanic Garden

** 国家重点保护野生动物

** National Key Protected Wildlife



广东省濒危的陆栖龟鳖类 (包括国家公布的物种)

Endangered non-marine turtles in Guangdong (including the species protected by the state)

黎振昌¹
Li Zhenchang¹

刘惠宁²
Michael Lau²

肖智¹
Xiao Zhi¹

广东省陆产龟鳖类共记录有 13 种。全都由于过度捕捉及生境破坏而受到严重威胁，保护龟鳖类刻不容缓。它们在广东的分布及现况如下：

All 13 species of non-marine turtles recorded from Guangdong are threatened as a result of overhunting and habitat destruction. There is an urgent need to conserve them. Their current status and distribution in Guangdong are shown as follows:

平胸龟 (<i>Platysternon megacephalum</i>) <i>Platysternon megacephalum</i>	濒危*, 原是广布的常见种, 由于被大量捕杀作药用, 野外现已极少发现。 Endangered*. Originally a widely distributed and common species. Due to massive-scale hunting for medicinal use, it is seldom found in the wild.
黑颈乌龟 (<i>Chinemys nigricans</i>) <i>Chinemys nigricans</i>	濒危*, 种群数量少, 加上滥捕, 近 30 年极少在野外发现。 Endangered*. Small population and overhunted; seldom found in the wild in the last 30 years.
乌龟 (<i>Chinemys reevesii</i>) <i>Chinemys reevesii</i>	濒危*, 广布常见种, 由于被大量捕食, 近 30 年极少在野外发现, 已有人工养殖。 Endangered*. Once a widely distributed and common species. Due to massive-scale hunting, rarely found in the wild in the last 30 years. There are commercial farms breeding this species.
三线闭壳龟 (金钱龟) (<i>Cuora trifasciata</i>) <i>Cuora trifasciata</i>	极危*, II 级**, 广布种, 自然种群少, 加上滥捕, 1985 年以后极少在野外发现, 已有人工养殖。 Critically Endangered *. Category II**. Once widely distributed. Small wild population and overhunted; rarely found in the wild since 1985. It is now being bred in commercial farms.
黄喉拟水龟 (<i>Mauremys mutica</i>) <i>Mauremys mutica</i>	濒危*, 自然种群少, 加上滥捕, 近 10 年极少在野外发现, 已作人工养殖对象。 Endangered* due to small wild population and overhunting. Rarely found in the wild in the last 10 years. It is now being farmed.

濒危的陆栖鳖类

中华花龟 (<i>Ocadia sinensis</i>) <i>Ocadia sinensis</i>	濒危*, 分布较广, 但因滥捕, 近 5 年极少在野外发现。 Endangered*. Once fairly widespread. Due to overhunting, rarely found in the wild in the last 5 years.
地龟 (<i>Geoemyda spengleri</i>) <i>Geoemyda spengleri</i>	濒危*, II 级**, 分布较广, 种群数量少, 加上滥捕, 近 10 年甚少在野外发现。 Endangered*. Category II**. Once fairly widespread. With small population and overhunting, seldom found in the wild in the last 10 years.
锯缘龟 (<i>Pyxidea mouhotii</i>) <i>Pyxidea mouhotii</i>	濒危*, 自然种群少, 加上滥捕, 野外现已极少发现。 Endangered*. Small wild population and overhunting, rarely found in the wild.
眼斑水龟 (<i>Sacalia bealei</i>) <i>Sacalia bealei</i>	濒危*, 自然种群少, 加上滥捕, 在野外仅偶有发现。 Endangered*. Small wild population and overhunting, only occasionally found in the wild.
四眼斑水龟 (<i>Sacalia quadriocellata</i>) <i>Sacalia quadriocellata</i>	濒危*, 自然种群少, 加上滥捕, 在野外仅偶有发现。 Endangered*. Small wild population and overhunting, only occasionally found in the wild.
山瑞鳖 (<i>Palea steindachneri</i>) <i>Palea steindachneri</i>	濒危*, II 级**, 广布种, 由于大量捕食, 近 10 年极少在野外发现, 已作为人工养殖对象。 Endangered*. Category II**. Once a widely distributed species. Due to massive collecting, seldom found in the wild in the last 10 years. It is now being bred in commercial farms.
鼋 (<i>Pelochelys cantori</i>) <i>Pelochelys cantori</i>	濒危*, I 级**, 在广东省绥江还有发现, 但数量极少, 已建立保护区保护。 Endangered*. Category I**. Very small number found in a section of Suijiang which is now a nature reserve.
中华鳖 (<i>Pelodiscus sinensis</i>) <i>Pelodiscus sinensis</i>	易危*, 广布种, 野外还有发现, 现已大量人工养殖 Vulnerable*. Widely distributed species. Can still be found in the wild. Many individuals are produced by commercial farms.

* 世界自然保护联盟《濒危动物红色名录》

* IUCN Red List

1. 广州华南师范大学生物系 Department of Biology, South China Normal University

2. 香港嘉道理农场暨植物园 Kadoorie Farm & Botanic Garden

** 国家重点保护野生动物

** National Key Protected Wildlife



1998至2000年于海南、广西进行之快速生物多样性调查摘要

费乐思(John Fellows)， 陈辈乐，吴世捷，刘惠宁及李国城编制（嘉道理农场暨植物园）

嘉道理农场暨植物园(本国)生物多样性考察队与其合作伙伴曾在下列地点作简短考察。注解: CR = 全球极危; EN = 全球濒危; VU = 全球易危; ⚠ = 极具保育意义的记录; ●●● = 具高生态完整性的群落; ●● = 具中至高生态完整性的群落; ● = 具低至中生态完整性的群落。

	礼纪青皮林自然保护区	黎母山林场	鹿母湾自然保护区	龙虎山自然保护区	崇左珍贵动物保护区
位置	海南省东南部 万宁市西南部	海南省中部 琼中自治县西面	海南省中部儋州市东南面, 毗连琼中、白沙两县	广西西南部隆安县南面	广西西南部崇左县中部
坐标	北纬 18 ° 35 ’ -18 ° 41 ’, 东经 110 ° 11 ’ -110 ° 16 ’	不详 (MacKinnon 等 (1996) 指出, 黎母山的坐标为 北纬 19 ° 16 ’, 东经 109 ° 48 ’,但我们未能确定 MacKinnon 等(1996) 所指的地点与考察队所到的是否同一处)	不详 (MacKinnon 等 (1996)未有提供资料)	北纬 22 ° 42’, 东经 107 ° 30’	北纬 22 ° 24’ — 22 ° 46’, 东经 107 ° 22’ — 107 ° 33’
保护区类型	省级自然保护区	森林公园	自然保护区	县级自然保护区, 省级风景区	省级自然保护区
设立目的	建于 1980 年, 主要保护青梅 <i>Vatica mangachapoi</i> 林(即青皮林)。 国家环保总局划为森林生态系统保护区。	拟建以鸟类为主的保护区 (MacKinnon 等, 1996)	建于 1992 年, 主要保护森林生态系统	建于 1980 年, 主要保护稀有药用植物、獼猴(<i>Macaca mulatta</i>)及岩溶地貌。国家环保总局划为野生植物保护区。	建于 1980 年, 主要保护黑叶猴 (<i>Trachypithecus francoisi</i>),白头叶猴(<i>T. poliocephalus leucocephalus</i>) 及獼猴。国家环保总局划为野生动物保护区。
管辖单位	海南省林业局	海南省林业局	环保总局	由广西卫生厅建立, 改由自 1989 年开始, 改由隆安县林业局接管	广西省林业局

	礼纪青皮林自然保护区	黎母山林场	鹿母湾自然保护区	龙虎山自然保护区	崇左珍贵动物保护区
面积	9.5 平方公里	7 平方公里	3 平方公里	20 平方公里	185 平方公里
自然地貌	沿岸平原地貌, 由海边至海拔 80 米。	中山地貌, 海拔 300 至 1,411 米	丘陵地貌, 海拔高度不详	岩溶地貌, 海拔 300-1,000 米	岩溶地貌: 石灰岩山峰约 400 至 600 米高, 低洼及低山地区海拔约 100 至 300 米。
平均气温	18 至 28°C (一月至七月)	16 至 26°C (一月至七月)	16 至 26°C (一月至七月)	13 至 28°C (一月至七月)	平均 22°C,极端气温界乎 -2 至 41°C 。
年降雨量	约 2,200 毫米	2,200 至 2,400 米	2,200 至 2,400 毫米	1,250 毫米	1,200 毫米(当中 85 % 集中在 4 月至 9 月的雨季)
植被区系	热带季风常绿雨林	热带季风常绿雨林	热带季风常绿雨林	北热带石灰岩季风雨林	北热带石灰岩季风雨林
本国考察日期	1999 年 5 月 19 日 (11.00 -18.30)保护区的沿岸地带, 海拔约 0-20 m 。	1999 年 6 月 15 日 (20.00 -21.30); 6 月 16 日 (07.00-16.00). 海拔 600-1,400 米	1999 年 6 月 17 日	1998 年 10 月 14 日, 由 16.00 至 17.30, 晚上 20.00 至 21.30 。 2000 年 4 月 2-3 日, 在保护区内及附近, 由 15.00 至 20.00 以及 06.00 至 07.30 。	1999 年 7 月 6 日, 由 13.00 至 16.15 。
本国的伙伴组织	海南省林业局, 华南植物研究所	海南省林业局, 华南植物研究所	海南省林业局, 华南植物研究所	广西省林业局, 华南植物研究所, 法国的 La Tour du Valat 及其他学术机构	广西省林业局, 广西植物研究所 及其他学术机构
现存植被	山坡为灌木丛(1-2 米高), 低洼平原为次生林。 青梅(龙脑香科的珍贵木材, 其树脂具药用价值) 为次生林(3-10 米高) 内的优势种。	近村庄为灌木丛, 较高地区为次生林(15 米高, 胸径 40 厘米),主要的林冠树种包括海南 鹅耳枥 <i>Carpinus londoniana</i> var. <i>lanceolata</i> ,	农田, 次生草地及灌木丛, 沟谷内有成小片状, 达 15 米高的次生林或残林。主要的林冠树种包括枫香树 <i>Liquidambar formosana</i> ,	石灰岩山地得到良好保护, 主要为约 4-6 米高 的疏林。沟谷林木茂密, 树高达 10-20 米, 胸径 40 厘米。主要的林冠树种包括黄叶树	平地多为耕地, 次生灌木丛 主要分布在 300 米以下的山地上, 在较高地方偶有 乔木生长。灌木丛一般约 2-4 米高, 主要物种有长花 龙血树 <i>Dracaena</i>

	礼纪青皮林自然保护区	黎母山林场	鹿母湾自然保护区	龙虎山自然保护区	崇左珍贵动物保护区
维管束植物	录得 124 个物种。 ☛ 青梅 <i>Vatica mangachapoi</i> (EN), 及单株的 苦梓 <i>Gmelina hainanensis</i> 及白桂木 <i>Artocarpus hypargyreus</i> (均列入 VU), 尚有数个海南特有种。●● 兰花资源极丰富; 其概况将另行发表。 Schizaea digitata ☛。该物种全球分布甚广, 但在中国却仅于海南及广东雷州半岛南面发现。●●	录得 373 个物种。 ☛ 油丹 <i>Alseodaphne hainanensis</i> , 粗枝崖摩 <i>Amoora dasyclada</i> 及 黏木 <i>Ixonanthes chinensis</i> (均列入 VU)及 25 个海南特有种。●● 兰花资源极为丰富; 其概况将另行发表。	录得 344 个物种(不包括简科)。 ☛ 坡垒 <i>Hopea hainanensis</i> (CR), 油丹 <i>Alseodaphne hainanensis</i> , 及 粗枝崖摩 <i>Amoora dasyclada</i> (均列入 VU), 另有 22 个海南特有种。●● 兰花资源极为丰富; 其概况将另行发表。	未作调查。 以往考察录得超过 1,100 个物种, 包括 金丝李 <i>Garcinia paucinervis</i> (EN), 肥牛树 <i>Cephalomappa sinensis</i> 及 视木 <i>Excentrodendron hsienmu</i> (均属 VU)。●●	录得 50 个物种。 ☛ 金丝李 <i>Garcinia paucinervis</i> (EN) 为广西及云南东南面石灰岩区的特有种。文献记载了 视木 <i>Excentrodendron hsienmu</i> 及 肥牛树 <i>Cephalomappa sinensis</i> (均属 VU)。●●
哺乳类	资料不详。	看到红腿长吻松鼠 <i>Dremomys pyrrhomerus</i> 。职员报称有海南毛猬 <i>Hylomys hainanensis</i> (EN), 海南兔 <i>Lepus hainanus</i> 及豪猪 <i>Hystrix brachyura</i> (均属 VU)。	森林内屡次发现野猪 <i>Sus scrofa</i> 的痕迹。当地官员报称,该区域哺乳动物资源丰富, 包括多种小型食肉动物, 大型的啮齿类及獼猴。	有数百头已习惯被人喂饲的獼猴。在两次考察中, 均看见数只赤腹松鼠 <i>Callosciurus erythraeus</i> 。	见到 ☛ 白头叶猴 (CR, 最近被认为与越北的金头叶猴 <i>T. poliocephalus</i> 属同一物种)。

	礼纪青皮林自然保护区	黎母山林场	鹿母湾自然保护区	龙虎山自然保护区	崇左珍贵动物保护区
鸟类	录得 27 个物种。最常见的有:白头鹇 <i>Pycnonotus sinensis</i> , 鹡鸰 <i>Copsychus saularis</i> 。亦录得一些于本园华南生物多样性调查期间不常见的鸟类, 但都属于不太需要依赖森林保护区生存的物种。●●	录得 42 个物种。最常见的有:灰眶雀鹛 <i>Alcippe morrisonia</i> , 白腹凤鹛 <i>Yuhina zantholeuca</i> , 山拟啄木鸟 <i>Megalaima oorti</i> 。☛ 海南柳莺 <i>Phylloscopus hainanus</i> (VU), 山皇鸠 <i>Ducula badia</i> 及淡紫鹇 <i>Sitta solangiae</i> (都属于分布局限的林木)。●●	录得 35 个物种。最常见的有: 纯色啄花鸟 <i>Dicaeum concolor</i> , 白头鹇 <i>Pycnonotus sinensis</i> , 白腰文鸟 <i>Lonchura striata</i> 。还有各类鹇、鹇、山椒鸟等林木鸟。●●	录得 35 个物种。在 1998 年 10 月期间最常见的有: 赤红山椒鸟 <i>Pericrocotus flammeus</i> , 极北柳莺 <i>Phylloscopus borealis</i> , 黄咀噪啄木鸟 <i>Blythipicus pyrrhotis</i> 。2000 年 4 月最常见的有: 赤红山椒鸟, 红耳鹎 <i>Pycnonotus jocosus</i> , 黑冠黄鹎 <i>P. melanicterus</i> 。还有其他森林专化种(例如 各类鹇, 白喉扇尾鹂 <i>Rhipidura albicollis</i> 以及 绒额鹇 <i>Sitta frontalis</i>)。曾在 龙虎山出现的两个物种: 海南鵙 <i>Gorsachius magnificus</i> (EN) 以及冠斑犀鸟 <i>Anthraceros coronatus</i> 均未在本园考察中录得。海南鵙曾于 1990 年在保护区周边录得。●●	录得 23 个物种。最常见的有: 红耳鹎 <i>Pycnonotus jocosus</i> , 暗绿绣眼鸟 <i>Zosterops japonica</i> , 小鸦鹛 <i>Centropus bengalensis</i> 。●●
爬行类	录得 4 个物种(3 种蜥蜴, 1 种蛇)。●●	录得 7 个物种(6 种蜥蜴, 1 种蛇)。1 个海南特有种, 2 个森林专化种。●●	录得 12 个物种(1 种水龟, 5 种蜥蜴, 6 种蛇)。当地居民捕获 ☛ 黄额盒龟 <i>Cuora galbinifrons</i> (CR)并准备贩卖。另有数个森林专化种。●●●●	录得 4 个物种(2 种蜥蜴, 2 种蛇)。●●	录得 3 种蜥蜴。铜蜓蜥 <i>Sphenomorphus indicus</i> 于人工林内发现; 并无其他森林专化种。●●
两栖类	记录了 6 个物种。最常见的有: 沼蛙 <i>Rana guentheri</i> , 泽蛙 <i>R. limnocharis</i> 。●●	记录了 15 个物种。最常见的有:小树蛙属一种(近眼斑小树蛙) <i>Philautus</i> (nr. <i>ocellatus</i>)。☛ 鳞皮厚蹼蟾 <i>Pelophryne scalpta</i> , 眼斑小树蛙 <i>Philautus</i>	录得 8 个物种。最常见的有: 黑眶蟾蜍 <i>Bufo melanostictus</i> 及泽蛙 <i>Rana limnocharis</i> 。两个海南特有种, 一个森林专化种。●●	录得 6 个物种。最常见的有: 泽蛙 <i>Rana limnocharis</i> 及沼蛙 <i>R.guentheri</i> 。●●	录得 3 个物种。最常见的有: 泽蛙 <i>Rana limnocharis</i> 及虎纹蛙 <i>R. rugulosa</i> 。●●

	礼纪青皮林自然保护区	黎母山林场	鹿母湾自然保护区	龙虎山自然保护区	崇左珍贵动物保护区
		ocellatus (均依赖海南的天然林), 尚有数个海南特有种。●●			
淡水鱼	记录了6个物种, 均为典型的低洼沼地物种。两个外来种(食蚊鱼 <i>Gambusia affinis</i> 及尼罗非鲫 <i>Oreochromis niloticus</i>) 更建立了庞大的种群。在本园华南生物多样性调查期间, 只在该保护区发现攀鲈 <i>Anabas testudineus</i> , 但此物种却不需依赖森林溪流生活。●	记录了10个物种。常见种有:拟细鲮 <i>Nicholsicypris normalis</i> , 条纹小鲃 <i>Puntius semifasciolatus</i> 及尼罗非鲫 <i>Oreochromis niloticus</i> 。 ● 南方波鱼 <i>Rasbora steineri</i> 及 ● 纹唇鱼 <i>Osteochilus vittatus</i> 在本园华南生物多样性调查期间甚少记录到, 但它们不大需要依赖森林溪流生活。海南原缨口鳅 <i>Vanmanenia hainanensis</i> 是海南特有种。●●	记录了21个物种。常见种有:拟细鲮 <i>Nicholsicypris normalis</i> , 条纹小鲃 <i>Puntius semifasciolatus</i> , 横纹南鳅 <i>Schistura fasciolata</i> 及宽额鳢 <i>Channa gachua</i> 。 ● 虹彩光唇鱼 <i>Acrossocheilus iridescens iridescens</i> , ● 纹唇鱼 <i>Osteochilus ittatus</i> 以及报称出现的 ● 爬岩鳅 <i>Beaufortia leveretti</i> 在本园过往的华南考察中都甚少记录到。海南原缨口鳅 <i>Vanmanenia hainanensis</i> 是海南特有种。●●●	未作调查。不过从当地渔民手中购买了5个物种: 它们暂被鉴定为异鳍 <i>Parazacco spilurus spilurus</i> , 短须鲮 <i>Acheilognathus barbatulus</i> , 长体小鰾鲊 <i>Microphysogobio elongata</i> , 隐鳍鲶属一种 <i>Pterocryptis</i> sp.及外来种食蚊鱼 <i>Gambusia affinis</i> 。考察队员亦在保护区的河流内看到 ● 虹彩光唇鱼 <i>Acrossocheilus iridescens</i> , 及身型庞大, 体长达20厘米的一种野鲮亚科 (Labeoninae)鱼类。但上述记录均有待专家验证。●●	由于考察期间未有发现地表水, 故未作调查。
蚂蚁	录得28个物种。 ● 厚结蚁属 <i>Pachycondyla</i> sp.19 在别处均未有记录, 只有15% 为森林专化种。19% (包括长足捷蚁 <i>Anopolepis gracilipes</i> 及长角立毛蚁 <i>Paratrechina longicornis</i>) 是已知或怀疑外来种。●	记录了24个物种, 当中有33% 属森林专化种, 是开阔的次生林中的典型数据。●●	记录了52个物种。 ● 弓背蚁属 <i>Camponotus</i> sp.42 及细猛蚁属 <i>Leptogenys</i> sp.21 在其他地区均未曾记录过, 其中33% 是森林专化种。●●	记录了21个物种。接近半数(43%)是森林专化种。 ● 小家蚁属 <i>Monomorium</i> sp.11, 在其他地区均未曾记录过。●●	记录了14个物种。没有森林专化种。2个非洲侵入外来种(长足捷蚁 <i>Anopolepis gracilipes</i> 及长角立毛 <i>Paratrechina longicornis</i>) 。●
蜻蜓	录得14个物种。 ● <i>Podolestes pandanus</i> 是	记录了14个物种, 其中有1个是	记录了27个物种。 ● <i>Rhinagrion hainanense</i>	未作调查。	记录了9个物种。 ● 大春蜓属 <i>Macrogomphus</i> sp.

	礼纪青皮林自然保护区	黎母山林场	鹿母湾自然保护区	龙虎山自然保护区	崇左珍贵动物保护区
	最近才发表的新种, 别处均未有记录。其除则为广泛分布的典型静水物种。●	海南特有种。●	是最近才发表的新种, 在其他地区均未曾记录过。有4个河溪型的箭蜻科 (Gomphidae)物种。●●		是未发表的新种, 在其他地区也未有记录。●
蝴蝶	录得30个物种。●	录得47个物种。 ● 宽带黛眼蝶 <i>Lethe helena</i> (看来是海南新记录)与 <i>PentHEMA lisarda</i> 。只有2个森林专化种。●●	录得49个物种。 ● 棒纹喙蝶 <i>Libythea myrrha</i> 及瑶峡蝶 <i>Yoma sabina</i> (看来在华南地区皆属稀有及局限分布的物种)。●●	未作调查。	录得26个物种。●
软体动物	录得10个物种 (3种陆生蜗牛, 一种蛞蝓, 6种淡水蜗牛)。	录得1种海南特有的森林蜗牛 <i>Pupina falva</i> .	录得5个物种 (2种陆生蜗牛, 3种淡水蜗牛)。	未作调查。	未作调查。
总体生物群	MacKinnon 等 (1996) 认为该保护区的生物多样性具本地重要性——这与本报告的调查结果吻合。在该区生活的陆栖动物为受干扰开阔低地生境里的典型物种, 只有少量森林专化种。但也记录到数个具保育价值的植物及昆虫物种。	MacKinnon 等 (1996) 认为该保护区的生物多样性具本地重要性——这与本站的调查结果相符, 尽管林地已被大规模开垦。就是次有限的考察时间来说, 该处植物资源非常丰富, 尤其是兰科植物。仅存的森林仍有全球濒危的海南柳莺栖息, 而红腿长吻松鼠只局限于原生林及较佳的次生林生活, 一些具保育意义的物种也可于河溪中发现。	由于缺乏此林区的资料, MacKinnon 等(1996)未有作 "重要性" 评估。本园的考察显示, 此区有丰富的兰花及(报称)哺乳类资源, 我们认为此区的生物多样性具本地重要性。就有有限的考察时间来说, 此区整体上具有较丰富的植物资源, 而生活于低海拔平缓河溪的动物群落更特别重要。最需关注的是该处的黄额盒电及坡垒种群的长期存活机会。	跟 MacKinnon 等 (1996) 的评估一样,我们认为这保护区的生物多样性具本地重要性。但以广西西部来考虑, 森林的覆盖率及林相的完整性都较高。在偏远之处, 生态健全性应更高。河流生态良好, 有大量鱼类生活, 包括体型较大的物种。我们认为应作更详细的鱼类调查及进一步考察海南隅。	MacKinnon 等 (1996) 认为这保护区的生物多样性具本地重要性。本区对白头叶猴的保护有著全球重要性, 但总体生物多样性贫乏, 只有零星的濒危受胁植物残存。
威胁与问题	保护区内偷猎屡见不鲜, 加上小型耕种, 例如腰果 <i>Anacardium occidentale</i> 人工林的种植亦随处可见, 令青梅林的生存受到威胁。	保护区内的森林持续退化, 砍伐及打猎频仍。黎母山林场原依赖采伐林木支持, 乃经济转型中的地区, 导致资源不足的	过往的林场作业造成植被质素激降, 而村民仍不断捕猎雀鸟, 龟鳖及其他生物。	游人的滋扰对某些野生动植物构成一定的威胁。獼猴数目众多也可能局部影响植被。	过往栖地遭到严重破坏, 植被骤减, 村民与猴子往往因为资源有限而起冲突。为了有效管理保护区, 有需要对当地的白头叶

	礼纪青皮林自然保护区	黎母山林场	鹿母湾自然保护区	龙虎山自然保护区	崇左珍贵动物保护区
	高速公路把山坡及海岸平原分割开,造成原生境破碎化,而沿岸发展计划可能进一步破坏生境。	问题出现。			猴种群进行详细的食性研究。同时,保护该区的整体生态系统也相当重要。
展望	在考察期间发现的青梅树虽多属幼树(少于10米高,胸径30厘米),但其生长状况颇佳,而且林下有很多苗木,拥有森林再生的条件。老树则报称分布于保护区的深处。为了恢复森林生态,我们建议于现时开阔空旷的灌木丛内种植各类原生树种,其次是遏止捕猎和采摘活动。为提高保护区的生态完整性,应把沿岸的青梅林与山坡上的灌木丛连合为一。青梅不但适应力强,而且经济价值高,适用于植林及公益林业。若有计划地、以可持续的方法收集其种子,培植树苗,应能为该保护区带来稳定的收入。	位于黎母山之顶峰及附近的一片未经开垦的森林,已成为当地生物多样性的小型避难所,亦可为附近的退化森林植被的再生提供种子来源。为了恢复此区的森林面貌,伐木、放牧、山火及其他人为活动必须受到管制。黎母山是海南中部一个重要的集水区,其溪流鱼类群落有很高的保育价值。黎母山亦是松涛水库的发源地,水库的用户为森林保护提供潜在的收入来源。若成功与鹿母湾自然保护区结合,将有助于建立一片大型的自然保护生境。	藉著保护区内丰富的植物,完整的河溪环境,和极多样化的鱼类群落,拥有发展小规模生态旅游的条件。但各种干扰如伐木、放牧、偷猎等仍未受监管,祸及本区开发生态旅游的经济潜力。若成功与拟建的黎母山自然保护区结合,将有助建立一片大型的自然保护生境。	大批游人前来参观,不但能提供资金作森林保护,更可藉此良机向市民灌输环保知识。保护区带来的经济效益显然有利森林保育。若可扩大保护区的范围,将有助提升其生态完整性。	新兴的生态旅游业促成多项保育项目,包括由北京大学及广西省林业局携手合作,有关利用当地社区进行叶猴保育的工作。生态恢复是这保护区一个重要课题,而保护区的地权纷争应当尽快解决,以确保叶猴种群能稳定发展。在恢复生境同时,应妥善保护濒危受胁的植物资源。

主要参考文献

广西壮族自冶区林业厅 (主编), 1993. 《广西自然保护区》. 中国林业出版社, 北京, 187 页.

Fellowes, J.R., Zhou F., Lee K.S., B.C.H. Hau, M.W.N. Lau, V.W.Y. Lam, L. Young and H. Hafner, 2001. Status update on White-eared Night Heron *Gorsachius magnificus* in South China. *Bird Conservation International* 11, 101-111.

IUCN, 2002. 2002 IUCN Red List of Threatened Species. Published on the Internet: <http://www.redlist.org/> (Accessed on 10 October 2002).

MacKinnon, J., Meng, S., Cheung, C., Carey, G., Zhu, X. and Melville, D., 1996. *A Biodiversity Review of China*. World Wide Fund for Nature (WWF) International, WWF China Programme, Hong Kong, 529 pp.

Zhang, W. (ed.), 1998. *China's Biodiversity: A Country Study*. China Environmental Science Press, Beijing, 476 pp.

Zhou Fang, 1994. White-eared Night Heron in Guangxi. Conservation fund in action. *Oriental Bird Club Bulletin* 23, 8-9.

Summary of findings from some rapid biodiversity assessments in Hainan and Guangxi, 1998-2000

John R. Fellowes, Bosco P.L. Chan, Ng Sai-Chit, Michael W. N. Lau & Lee Kwok Shing (Compilers) (Kadoorie Farm & Botanic Garden)

The following sites were visited very briefly by the KFBG team with colleagues from partner organizations. Key to abbreviations/symbols: CR = Critically Endangered globally; EN = Endangered globally; VU = Vulnerable globally; ♀ = records of special conservation significance; ●●● = assemblage indicating high ecological integrity; ●● = assemblage indicating moderate to high ecological integrity; ● = assemblage indicating low to moderate ecological integrity.

	Liji Qingpilin Nature Reserve	Limushan Forest Farm	Lumuwan Nature Reserve	Longhushan Natural Medicine Nature Reserve	Chongzuo Rare Animal Nature Reserve
Location	Southwestern Wanning County, Southeast Hainan	Western Qiongzong Autonomous County, counties, central Hainan	Southeastern Danzhou County, on border with Qiongzong and Baisha Counties, central Hainan	Southern Longan County, Southwest Guangxi	Central Chongzuo County, Southwest Guangxi
Coordinates	18° 35'-18° 41' N, 110° 11'-110° 16' E	Uncertain (MacKinnon <i>et al.</i> (1996) gave 19° 16' N, 109° 48' E for Li Mu Shan, but unclear whether this is the same place)	Uncertain (not given in MacKinnon <i>et al.</i> , 1996)	22° 42' N, 107° 30' E.	22° 24'-22° 46' N, 107° 22'-107° 33' E
Status	Nature Reserve (provincial)	Forest Park	Nature Reserve	Nature Reserve (county), Scenic Spot (provincial)	Nature Reserve (provincial)
Establish- ment, aims	1980, mainly to protect <i>Vatica mangachapoi</i> (Common Greytwig) forest ("Qingpi Lin"). Classified by SEPA as a Forest Ecosystem reserve.	Proposed Nature Reserve for birds (MacKinnon <i>et al.</i> 1996)	1992, to protect forest ecosystem.	1980, to protect rare medicinal plants, Rhesus Monkey <i>Macaca mulatta</i> and karst landscape. Classified by SEPA as a Wild Plant reserve.	1980, to protect Francois's Leaf Monkey <i>Trachypithecus francoisi</i> , White-headed Leaf Monkey <i>Trachypithecus poliocephalus leucocephalus</i> and Rhesus Monkey <i>Macaca mulatta</i> . Classified by SEPA as a Wild Animal reserve.

	Liji Qingpilin Nature Reserve	Limushan Forest Farm	Lumuwan Nature Reserve	Longhushan Natural Medicine Nature Reserve	Chongzuo Rare Animal Nature Reserve
Management	Hainan Forestry Department	Hainan Forestry Department	Environmental Protection Administration	Originally Guangxi Health Bureau; Longan ounty Forestry Bureau from 1989	Guangxi Forestry Department
Area	9.5 km²	7 km²	3 km²	20 km²	185 km²
Landscape,	Coastal plain landscape, from sea level to 80 m asl.	Moderately gentle hills, 300 to 1,411 m	Gently undulating landscape, altitude range uncertain.	Karst, 300-1,000 m	Karst: limestone hills 400 to 600 m, depressions and low hills 100 to 300 m.
Monthly temperature	18 to 28°C (Jan. to July)	16 to 26°C (Jan. to July)	16 to 26°C (Jan. to July)	13 to 28°C (Jan. to July)	Average 22 °C, extremes from -2 to 41 °C.
Annual rainfall	About 2,200 mm	2,200 to 2,400 mm	2,200-2,400 mm	1,250 mm	1,200 mm, 85% in the wet season from April to September.
Zonal vegetation	Tropical monsoonal evergreen rainforest	Tropical monsoonal evergreen rainforest	Tropical monsoonal evergreen rainforest	Northern tropical monsoonal limestone forest	Northern tropical monsoonal limestone forest
KFBG fieldwork	19 May 1999 (11.00-18.30) Coastal part of the reserve, at about 0- 20 m asl.	15 June 1999 (20.00- 21.30); 16 June (07.00 -16.00). Altitude 600- 1,400m	17 June 1999	14 October 1998, from 16.00 to 17.30 and at night from 20.00 to 21.30. Also 2-3 April 2000, in and near reserve, from 15.00 to 20.00 and 06.00 to 07.30. Latter trip in search of White-eared Night Heron <i>Gorsachius magnificus</i> . Both visits confined to river valley.	6 July 1999, from 13.00 to 16.15.
KFBG partner organisations	Hainan Forestry Dept. South China Inst. of Botany	Hainan Forestry Dept. South China Inst. of Botany	Hainan Forestry Dept. South China Inst. of Botany	Guangxi Forestry Dept. South China Inst. of Botany La Tour du Valat and other institutions	Guangxi Forestry Dept. Guangxi Inst. of Botany and other institutions

	Liji Qingpilin Nature Reserve	Limushan Forest Farm	Lumuwan Nature Reserve	Longhushan Natural Medicine Nature Reserve	Chongzuo Rare Animal Nature Reserve
Current vegetation	Shrubland (1-2 m tall) on hillsides and secondary forest on the low-lying plain. Secondary forest (3-10 m tall) dominated by <i>Vatica mangachapoi</i> (a dipterocarp valued for its timber, and resin of medicinal value).	Shrubland near village. Secondary forest (15 m height, 40 cm dbh) higher up. Major canopy species include <i>Carpinus</i> <i>londoniana</i> var. <i>lanceolata</i> , <i>Endospermum</i> <i>chinense</i> , and <i>Liquidambar</i> <i>formosana</i> .	Farmland and secondary grassland and shrubland, with small patches of secondary or remnant forest up to 15 m tall in ravines. Major canopy species include <i>Liquidambar</i> <i>formosana</i> , <i>Cyclobalanopsis</i> <i>patelliformis</i> , <i>Lithocarpus</i> <i>corneus</i> , <i>Gironniera</i> <i>subaequalis</i> , and <i>Bischofia</i> <i>javanica</i> .	Limestone hillside fairly well-protected and covered in open forest about 4-6m tall. Well forested in the ravine, up to 10-20m tall and 40cm dbh. Major canopy species included <i>Xanthophyllum hainanensis</i> , <i>Ficus microcarpa</i> , <i>Celtis</i> <i>sinensis</i> , <i>Sterculia</i> <i>lanceolata</i> , and <i>Aporosa dioica</i> .	Flat land cultivated. Hills covered mainly in secondary shrubland below 300 m with occasional trees higher up. Shrubland generally 2-4 m high, dominated by <i>Dracaena angustifolia</i> , <i>Psidium guajava</i> , <i>Mallotus</i> <i>apelta</i> , <i>Phyllanthus</i> <i>emblica</i> , <i>Dalbergia hancei</i> , and <i>Eupatorium odoratum</i> . Forest dominated by <i>Pteroceltis tatarinowii</i> , <i>Mallotus japonicus</i> var. <i>floccosus</i> , <i>Celtis tetrandra</i> subsp. <i>sinensis</i> , <i>Myrica</i> <i>rubra</i> , and <i>Litsea glutinosa</i> .
Vascular plants	Recorded 124 species. ☛ <i>Vatica mangachapoi</i> (EN), and single individuals of <i>Gmelina hainanensis</i> , and <i>Artocarpus</i> <i>hypargyreus</i> (both VU), and several other Hainan endemics. ☛ The fern <i>Schizaea digitata</i> had not been recorded in China for several decades. The species has a wide global distribution but in China known only from Hainan and southern Leizhou Peninsula in Guangdong. ●	Recorded 373 species. ☛ <i>Alseodaphne</i> <i>hainanensis</i> , <i>Amoora</i> <i>dasyclada</i> and <i>Ixonanthes</i> <i>chinensis</i> (all VU), and 25 Hainan endemics. ●● Exceptionally rich orchid flora; an overview will be presented in a future publication.	Recorded 344 species (excluding Orchidaceae). ☛ <i>Hopea hainanensis</i> (CR), <i>Alseodaphne hainanensis</i> and <i>Amoora dasyclada</i> , and another 22 Hainan endemics. ●● Exceptionally rich orchid flora; an overview will be presented in a future publication.	Not surveyed. Previous surveys have recorded > 1,100 species, including <i>Garcinia</i> <i>paucinervis</i> (EN), <i>Cephalomappa sinensis</i> and <i>Excentrodendron</i> <i>hsienmu</i> (both VU). ●●	Recorded 50 species. ☛ <i>Garcinia paucinervis</i> (EN), endemic to limestone areas of Guangxi and SE Yunnan. Earlier surveys had recorded <i>Excentrodendron</i> <i>hsienmu</i> and <i>Cephalomappa</i> <i>sinensis</i> (both VU). ●
Mammals	No information available.	Saw Red-hipped Squirrel	Many signs of Wild Boar Sus	Severed hundred Rhesus	☛ White-headed Leaf

	Liji Qingpilin Nature Reserve	Limushan Forest Farm	Lumuwan Nature Reserve	Longhushan Natural Medicine Nature Reserve	Chongzuo Rare Animal Nature Reserve
		<i>Dremomys pyrrhomerus</i> . Staff reported Hainan Gymnure <i>Hylomys</i> <i>hainanensis</i> (EN), Hainan Hare <i>Lepus hainanus</i> and Malayan Porcupine <i>Hystrix</i> <i>brachyura</i> (both VU).	<i>scrofa</i> in the forest. Officials reported a rich mammal fauna, including various small carnivores, large rodents and macaques.	Monkeys, fed by people. Several Pallas's Squirrels <i>Callosciurus erythraeus</i> seen on each trip.	Monkey (CR as <i>T. poliocep</i> <i>halus</i>) seen.
Birds	Recorded 27 species. Most frequent: Light-vented Bulbul <i>Pycnonotus sinensis</i> , Oriental Magpie Robin <i>Copsychus saularis</i> . Also some species recorded infrequently during KFBG's South China surveys, but not especially dependent on forest nature reserves. ●	Recorded 42 species. Most frequent: Grey-cheeked Fulvetta <i>Alcippe morrisonia</i> , White-bellied Yuhina <i>Yuhina</i> <i>zantholeuca</i> , Black-browed Barbet <i>Megalaima oorti</i> . ☛ Hainan Leaf Warbler <i>Phylloscopus hainanus</i> (VU), Mountain Imperial Pigeon <i>Ducula badia</i> and Yellow-billed Nuthatch <i>Sitta solangiae</i> (all forest birds restricted in range). ●●	Recorded 35 species. Most frequent: Plain Flowerpecker <i>Dicaeum</i> <i>concolor</i> , Light-vented Bulbul <i>Pycnonotus sinensis</i> , White-rumped Munia <i>Lonchura striata</i> . Also various forest babblers, bulbuls and minivets. ●●	Recorded 35 species. Most frequent in October 1998: Scarlet Minivet <i>Pericrocotus</i> <i>flammeus</i> , Arctic Warbler <i>Phylloscopus borealis</i> , Bay Woodpecker <i>Blythipicus</i> <i>pyrrhotis</i> . Most frequent in April 2000: Scarlet Minivet, Red-whiskered Bulbul <i>Pycnonotus jocosus</i> , Black- crested Bulbul <i>P.</i> <i>melanicterus</i> . Also several other forest-dependent species (e.g. various babblers, White-throated Fantail <i>Rhipidura albicollis</i> and Velvet-fronted Nuthatch <i>Sitta frontalis</i>). Two species previously recorded at Longhushan, White-eared Night Heron <i>Gorsachius magnificus</i> (EN) and Pied Hornbill <i>Anthracoceros coronatus</i> , were not detected in our surveys; the former species was recorded nearby in 1990. ●●	Recorded 23 species. Most frequent: Red-whiskered Bulbul <i>Pycnonotus jocosus</i> , Japanese White-eye <i>Zosterops japonica</i> , Lesser Coucal <i>Centropus</i> <i>bengalensis</i> . ●

	Liji Qingpilin Nature Reserve	Limushan Forest Farm	Lumuwan Nature Reserve	Longhushan Natural Medicine Nature Reserve	Chongzuo Rare Animal Nature Reserve
Reptiles	Recorded four species (three lizards, one snake). ●	Recorded seven species (six lizards, one snake). One Hainan endemic, two forest specialists. ●●	Recorded 12 species (one terrapin, five lizards, six snakes). ☛ <i>Cuora galbinifrons</i> (Indochinese Box Turtle) (CR), captured locally by residents and to be sold. Several other forest- dependent species. ●●●	Recorded four species (two lizards, two snakes). ●	Recorded three lizard species. The skink <i>Sphenomorphus indicus</i> occurred in plantation; no other forest specialists. ●
Amphibians	Recorded six species. Most frequent: <i>Rana</i> <i>guentheri</i> , <i>R.</i> <i>limnocharis</i> . ●	Recorded 15 species. Most frequent: <i>Philautus</i> (nr. <i>ocellatus</i>) sp. ☛ <i>Pelophryne scalpta</i> , <i>Philautus ocellatus</i> (both dependent on natural forests of Hainan), and several other endemics. ●●	Recorded eight species. Most frequent: <i>Bufo</i> <i>melanostictus</i> , <i>Rana</i> <i>limnocharis</i> . Two Hainan endemics, one forest specialist. ●●	Recorded six species. Most frequent: <i>Rana</i> <i>limnocharis</i> , <i>R. guentheri</i> . ●	Recorded three species. Most frequent: <i>Rana</i> <i>limnocharis</i> , <i>R. rugulosa</i> . ●
Freshwater fishes	Recorded six species. Typical of lowland marshy habitat with thriving populations of two exotic species (<i>Gambusia affinis</i> and <i>Oreochromis niloticus</i>). Only site where the climbing perch <i>Anabas testudineus</i> has been recorded during KFBG's South China surveys, but the species is not especially dependent on forest streams. ●	Recorded 10 species. Most frequent: <i>Nicholsicypris normalis</i> , <i>Puntius semifasciolatus</i> and <i>Oreochromis</i> <i>niloticus</i> . ☛ <i>Rasbora steineri</i> and ☛ <i>Osteochilus vittatus</i> rarely recorded in KFBG's South China surveys, but the species are not especially dependent on forest streams. <i>Vanmanenia</i> <i>hainanensis</i> is endemic to Hainan. ●●	Recorded 21 species. Most frequent: <i>Nicholsicypris</i> <i>normalis</i> , <i>Puntius</i> <i>semifasciolatus</i> , <i>Schistura</i> <i>fasciolata</i> and <i>Channa</i> <i>gachua</i> . ☛ <i>Acrossocheilus</i> <i>iridescentis iridescentis</i> , ☛ <i>Osteochilus vittatus</i> and the reported ☛ <i>Beaufortia</i> <i>leveretti</i> rarely recorded in KFBG's South China surveys. <i>Vanmanenia</i> <i>hainanensis</i> is endemic to Hainan. ●●●	Not surveyed, but five species caught locally were purchased from fishers: provisionally identified as <i>Parazacco spilurus spilurus</i> , <i>Acheilognathus barbatulus</i> , <i>Microphysogobio elongata</i> , <i>Pterocryptis</i> sp. and the exotic <i>Gambusia affinis</i> (Mosquitofish). ☛ <i>Acrossocheilus iridescentis</i> and a large-sized Labeoninae (length ~20cm) were observed in the river draining the reserve. Records not verified by specialists. ●●	Not surveyed due to lack of surface water at the time of visit.

	Liji Qingpilin Nature Reserve	Limushan Forest Farm	Lumuwan Nature Reserve	Longhushan Natural Medicine Nature Reserve	Chongzuo Rare Animal Nature Reserve
Ants	Recorded 28 species. ❖ <i>Pachycondyla</i> sp. 19 has not been recorded elsewhere. Only 15% of species forest specialists. 19% (incl. <i>Anoplolepis gracilipes</i> & <i>Paratrechina longicornis</i>) known or suspected exotics. ●	Recorded 24 species. 33% of species forest specialists, a figure typical of open secondary forest. ●●	Recorded 52 species. ❖ <i>Camponotus</i> sp. 42 and <i>Leptogenys</i> sp. 21 have not been recorded elsewhere. 33% of species forest specialists. ●●	Recorded 21 species. Almost half (43%) were forest specialists. ❖ <i>Monomorium</i> sp. 11 has not been recorded elsewhere. ●●	Recorded 14 species. No forest specialists. Two African exotics (<i>Anoplolepis gracilipes</i> and <i>Paratrechina longicornis</i>). ●
Dragonflies	Recorded 14 species. ❖ <i>Podolestes pandanus</i> newly described, not yet recorded elsewhere. Other species all widespread, typical of lentic habitats. ●	Recorded 14 species. One Hainan endemic. ●	Recorded 27 species. ❖ <i>Rhinagrion hainanense</i> newly described, not yet recorded elsewhere. Four riverine gomphids present. ●●	Not studied.	Recorded nine species. ❖ <i>Macrogomphus</i> sp. undescribed, not yet recorded elsewhere. ●
Butterflies	Recorded 30 species. ●	Recorded 47 species. ❖ <i>Letha helena</i> (apparently a new Hainan record) and <i>PentHEMA lisarda</i> . Only two forest specialists. ●●	Recorded 49 species. ❖ <i>Libythea myrrha</i> and <i>Yomama sabina</i> (both apparently rare and restricted in South China). ●●	Not studied.	Recorded 26 species. ●
Molluscs	Recorded ten species (three land snails, one slug, six freshwater snails).	Recorded one Hainan-endemic forest snail, <i>Pupina falva</i> .	Recorded five species (two land snails, three freshwater snails).	Not studied.	Not studied.
Overall biota	Expected to be of local biodiversity significance by MacKinnon <i>et al.</i> (1996) –confirmed here. Terrestrial fauna typical of disturbed open lowland habitats, with few true forest specialists. But some plant and insect species of conservation significance.	Expected to be of local biodiversity significance by MacKinnon <i>et al.</i> (1996) – confirmed here despite extensive forest clearance. Richness of plants, especially orchids, was high given the limited survey effort. Remaining forest supported globally- Threatened	Importance not assessed by MacKinnon <i>et al.</i> (1996), due to lack of information about forest. Present survey suggests high local biodiversity importance, with high richness in orchids and (reportedly) mammals. Overall plant richness relatively high	High local biodiversity importance, as predicted by MacKinnon <i>et al.</i> (1996). Reserve small, but forest quite extensive and intact for western Guangxi. Ecological integrity likely to be higher in less accessible parts. River in good condition with	Considered of local biodiversity significance by MacKinnon <i>et al.</i> (1996). Site is of global importance to White-headed Leaf Monkey. Otherwise the biota impoverished, but certain threatened plants remain.

	Liji Qingpilin Nature Reserve	Limushan Forest Farm	Lumuwan Nature Reserve	Longhushan Natural Medicine Nature Reserve	Chongzuo Rare Animal Nature Reserve
Threats & problems	Hunting ongoing inside the nature reserve. Small-scale farming, including plantations of <i>Anacardium occidentale</i> (Kidney Bean), also still occurred in the reserve, threatening the <i>V. mangachapoi</i> forest. Highway has effectively separated hillsides and coastal plain, and coastal development projects may pose further risks to habitat.	Hainan Leaf Warbler, while Red-hipped Squirrel is restricted to primary and good secondary forest. The stream also supported important species.	given limited survey effort Fauna associated with low- gradient lowland stream particularly important. Viability of populations of <i>Cuora galbinifrons</i> and <i>Hopea hainanensis</i> are of prime concern.	abundant fish including large-bodied species. More detailed fish survey required, plus further survey for White-eared Night Heron.	Habitat disturbance had been extreme in the past. Due to depleted vegetation there are still conflicts in resource use between villagers and monkeys. Diet and feeding ecology of local White-headed Leaf Monkey population needs detailed study to allow appropriate reserve management; also important to consider the ecosystem as a whole.
Opportunities	Potential for regeneration of the <i>Vatica</i> forest : trees found were quite young (less than 10 m tall and 30 cm dbh), but healthy and renewing themselves, with many saplings seen. Older individuals reportedly occurred further within the reserve. Forest recovery might be facilitated by planting a mix of native tree species in existing	Uncleared forest on and around the summit at Limushan has provided a local refuge for biodiversity, and a seed source if degraded areas are allowed to regenerate. This requires control of logging, grazing, hillfire and other human activities. Limushan is an important watershed in central Hainan and the fish fauna is of high	Potential to develop small-scale eco-tourism, drawing attention to diverse flora, intact streams and their extremely diverse fish fauna. But economic potential threatened by uncontrolled disturbance, such as logging, grazing and poaching. Connection with proposed Limushan Nature Reserve would protect a larger habitat	Large number of visitors provides finance to conserve forest, and an excellent opportunity for environmental education, that is not yet utilised. Economic benefits have apparently conferred protection on the forest. Ecological integrity would be enhanced if the reserve were enlarged.	Funded by the newly established ecotourism operation, work is under way involving Beijing University and Guangxi Forestry Department to protect leaf monkeys and involve the local community in conservation. Ecological restoration will be an essential task. Land tenure within the Reserve needs to be resolved to guarantee

	Liji Qingpilin Nature Reserve	Limushan Forest Farm	Lumuwan Nature Reserve	Longhushan Natural Medicine Nature Reserve	Chongzuo Rare Animal Nature Reserve
	open shrubland. But strict controls on hunting and collecting needed for recovery to succeed. Ecological integrity could be enhanced by connecting coastal <i>Vatica</i> forest with hillside shrubland. As an adaptable species of high economic value, <i>V. mangachapoi</i> is suitable for reforestation and community forestry; sustainable harvest of its seeds and rearing of saplings could become a stable income source for the reserve.	conservation value. It is also the headwater for the nearby Songtu Reservoir; water users provide a potential source of income for forest protection. Connection with Lumuwan Nature Reserve would protect a larger habitat area.	area.		long-term survival of the monkey population. Threatened flora should be carefully safeguarded as natural habitats are restored.

Major references

Fellowes, J.R., Zhou F., Lee K.S., B.C.H. Hau, M.W.N. Lau, V.W.Y. Lam, L. Young and H. Hafner, 2001. Status update on White-eared Night Heron *Gorsachius magnificus* in South China. *Bird Conservation International* 11, 101-111.

Forestry Department of Guangxi Zhuang Autonomous Region, 1993. *Guangxi Nature Reserves*. China Forestry Publishing House, Beijing, 187 pp. (In Chinese.)

IUCN, 2002. *2002 IUCN Red List of Threatened Species*. Published on the Internet: <http://www.redlist.org/> (Accessed on 10 October 2002).

MacKinnon, J., Meng, S., Cheung, C., Carey, G., Zhu, X. and Melville, D., 1996. *A Biodiversity Review of China*. World Wide Fund for Nature (WWF) International, WWF China Programme, Hong Kong, 529 pp.

Zhang, W. (ed.), 1998. *China's Biodiversity: A Country Study*. China Environmental Science Press, Beijing, 476 pp.

Zhou Fang, 1994. White-eared Night Heron in Guangxi. Conservation fund in action. *Oriental Bird Club Bulletin* 23, 8-9.

陕西下达野生动物狩猎计划 可猎杀野猪 9700 头

**Wild Animal Hunting Programme in
Shaanxi allows yield of 9,700 wild boar**

陕西省林业厅下达了野生动物狩猎计划，全省今秋明春总共可猎杀野猪 9700 头。植树造林，换来绿色满山，生态改善了，野猪却繁衍增多了，它们成群结队地糟蹋庄稼，与人争粮，甚至伤害群众，但由于野猪受法律保护，人们不敢猎杀。

为了科学保护和合理利用野生动物资源，结合当地野生动物资源现状和各市打猎护粮的需要，省林业厅在本次狩猎计划中，将狩猎计划逐级分解到县、乡。由县级以上野生动物行政主管部门核发狩猎证并依法徵收野生动物资源管理费，严禁超计划狩猎野生动物。在狩猎季节，各级野生动物行政部门要对当地的狩猎活动进行认真管理，组织群众清查套，禁止使用军用武器、体育运动枪支、毒药、炸药、猎套、铁夹、地坑、电击等手段和工具进行歼灭性围猎，并不得破坏野生动物的栖息地。

Under the Wild Animal Hunting Programme launched by Shaanxi Forestry Department, a total of 9,700 wild boar can be hunted in Shaanxi province this Autumn and next Spring.

Afforestation in the Province has been accompanied by an increase in wild boar numbers. The wild boar travel in groups, damaging crops and robbing villagers' food. They even cause occasional injuries to the villagers. However, the wild boar is now under protection, and people dare not hunt them.

The Provincial Forestry Department, taking into account the animals' current status and the needs of local farmers, will launch the hunting programme hierarchically to counties and villages. Administrative departments above county level in charge of wild animal resources will verify the issue of hunting permits and levy wild animal management fees. By doing so, it is hoped to prohibit over-hunting of wild animals. During the hunting season, officials of all levels should monitor vigilantly local hunting activities, with spot checks in the prescribed hunting areas. Tools such as military weapons, sports guns, poison, explosives, snares, gin traps and the use of pitfalls and electric shock are all banned. Habitats may not be damaged.

华商报 *Hua Shang Bao* 2002.10.15

中药资源面临严峻挑战

**Traditional Chinese Medicine
faces tough challenges**

中国海南省的「海马人工繁育」项目将成为中药发展的样板。此项采用人工模拟适宜生态系统技术及载体催熟繁育等技术，已在中试繁育、养殖中获得成功，三年内将达到五十吨海马的产量。

海马常被当作中药使用，现时，这一物种资源却面临接近枯竭的窘境。海南中药研究人员估计以海马为主要原料的中药已经开发出几十种，中国每年需求乾海马约二百五十吨，九成是从越南、菲律宾、印度等国进口。

北京大学教授陈昌笃等专家说，中国有中药资源一万二千八百多种，近年来，野生药材数量普遍下降，其中甘草和麝香等数十种资源大幅下降，处于濒危状态。

A "Seahorse Captive Breeding Programme" has been launched in Hainan, adopting a natural captive environment and hormone-induced breeding; it is intended to be a model for TCM development. The programme has had preliminary success in mid-term breeding and rearing trials, and it was estimated that the production yield of seahorses may reach 50 tons in 3 years. Seahorses have long been exploited for use in Chinese medicine, and many species are now facing extinction. According to TCM researchers in Hainan, tens of TCMs include seahorses as major components. Annual demand for dried seahorses in China is about 250 tons, 90% of which are imported from Vietnam, the Philippines, India and elsewhere.

According to Professor Chen Changdu at Beijing University, there are currently about 12,800 kinds of TCM found in China. However, in recent years, the availability of exotic medicines has been decreasing, as many species are near extinction.

大公报 *Tai Kung Po* 2002.05.24



每天消耗约两吨谁来保护蛇？

Hainan citizens' attitude to snakes impacting their survival

海南最近作了一个公众对蛇类资源的保护态度的调查。4,000 被访者中，有一半以上的人认为蛇有滋补作用。文化程度越高，持这种看法的人就越多，加上美容广告的刺激，使吃蛇的队伍迅速发展壮大。

海南吃蛇，有人还将其当成身份的象徵。一些餐馆，厨师像炫耀技艺一般，常常将蛇抓到包厢，让食客验证，当场宰杀，剖出蛇胆，让在座的位尊者和酒服下。海南还实行龟蛇同烹，声称吃了能对抵抗海南的湿热气候有益。

海南目前还没有大型的蛇类人工养殖场所。市场上的蛇，大多数来自海南中部山区及少量来自越南等地。估算海南每天要消耗 2000 多条蛇，约两吨左右，这样的食用速度，蛇类的野生繁殖自然是无法赶上，若干年后，蛇在海南将成为稀有动物。

Recently a survey was conducted on Hainan citizens' attitude towards snake conservation. Of 4,000 respondents, over half believed that snake products have great tonic effects. Highly-educated people were more likely to hold this belief. Spurred by beauty ads, a rapidly increasing number of people have begun eating snakes.

Snake eating in Hainan is regarded as a status symbol. In some restaurants, chefs approach customers with a live snake for their verification. The snake is immediately slaughtered and its gall bladder put into wine to be drunk by the customers. A mixed dish of cooked turtle and snake is reputed to alleviate the discomfort caused by humid, hot weather in Hainan.

At present there is no large-scale captive breeding centre for snakes. Most snakes in the market come from the mountainous areas of central Hainan while some are from countries like Vietnam. Daily consumption of snakes is estimated at 2,000 individuals, or about 2 tons. Reproduction of wild snakes is unable to keep pace with this consumption, and snakes will soon become endangered species in Hainan.

人民日报·华南新闻
People's Daily 2002.07.09

云南查获大型动物走私案

Big seizure of smuggled wildlife in Yunnan

2001 年 8 月 8 日，武警在云南保山的勐海检查站截停一辆运送鱼皮乾的货车，并检获大量走私兽皮，包括 23 块虎皮(《濒危野生动植物种国际贸易公约 I》)，33 块豹皮(《濒危野生动植物种国际贸易公约 I》)及 134 块水獭皮。被捕两人声称这些兽皮均购自邻近国家，在中国加工成高档货品后再偷运出国，案件现交由保山森林公安局调查。

On 8 August 2001, armed police at the Menghai Inspection Station in Baoshan, Yunnan, seized animal skins from a lorry used for transporting dried fish skins. They included 23 pieces of Tiger *Panthera tigris* (CITES I) skin, 33 pieces of Leopard *P. pardus* (CITES I) skin and 134 pieces of Otter skin. Two people who were arrested claimed that the skins had been purchased in a neighbouring country and were to be smuggled out of China after being processed into luxury items. The case is being investigated by Baoshan Forest Police Bureau.

Traffic Bulletin 2002 年 11 月号第 19 卷第二期
Traffic Bulletin Vol. 19 No. 2 November 2002

每年损失五百亿元治理防范刻不容缓

It's high time to adopt preventive measures

我国林业每年因几种主要外来有害生物的入侵造成的经济、社会和生态损失达 560 亿元，外来有害生物已经成为影响林业健康发展的主要障碍。

新中国成立以来，先后有松材线虫、美国白蛾、松突圆蚧、日本松干蚧、湿地松粉蚧、双钩异翅长蠹、松针褐斑病等重要森林病虫害传入我国。在几种危险性病虫害中，仅松材线虫一项造成的直接经济损失就达 25 亿元之多。

Invasions by several major alien pest organisms cause an estimated annual loss of RMB\$560 billion in the forestry industry of China. The Pinewood nematode alone has caused a direct economic loss of RMB\$2.5 billion.

中国环境 China Environment 2002.10.16

广东封开查获贩运熊掌 107 只熊胆 21 个

107 bear claws and 21 gall bladders confiscated in Guangdong

封开县公安机关与武警官兵于 2 5 日零时 3 0 分许在 3 2 1 国道封开路段封川收费站设卡，对一辆由四川开往广州的双层白色大巴进行检查时，在客车行李厢内发现四箱被偷运的 1 0 7 只熊掌、2 1 只熊胆。

At 0:30am, 25 Oct., during a spot check at a toll station in Fengkai county, Guangdong police confiscated 107 bear claws and 21 bear gallbladders, in a bus running from Sichuan to Guangzhou.

南方日报 Nan Fang Daily 2002.10.18

我国现有自然保护区一千五百多个

1,551 nature reserves in China

国家环保总局有关负责人在纪念国际生物多样性日新闻发布会上宣布：截至 2001 年底，我国已建立森林、草原、湿地等各种类型和不同级别的自然保护区 1,551 个(不包括港澳台)，面积 12,989 万公顷，陆地保护区的面积约占陆地国土面积的 12.9%。

据统计，我国共有国家级自然保护区 171 个、省级自然保护区 526 个、地市级自然保护区 269 个、县级自然保护区 585 个。

现共有 21 个具有国际重要意义的生物圈自然保护区。

SEPA announced that by 2001, China had established 1,551 nature reserves of different types and levels. They included 171 National Nature Reserves, 526 provincial Nature Reserves, 269 municipal Nature Reserves and 585 county-level Nature Reserves, together covering 12,900Km² hectares. 21 Nature Reserves are recognised as international biosphere reserves.

人民日报 People's Daily 2002.05.22

华南虎野化训练

Wild training for South China Tiger

国家林业局决定采用南非野化孟加拉虎的技术和方法，将人工繁殖的华南虎送到南非进行野化训练，以逐步恢复华南虎的野外适应和自我维持能力。首批野化后的华南虎于 2008 年才能送回。

By sending captive-bred South China Tigers to South Africa, SFA hopes the techniques and methods developed in South Africa will gradually restore the tigers' survival skills and ability to adapt to the wild. The first group of these tigers will return to China in 2008.

东方日报 Oriental Daily 2002.11.28

青年科学家张亚平荣获

世界生物多样性领导奖

Young scientist wins biodiversity leadership award

现年 37 岁的青年科学家张亚平，中国科学院昆明动物研究所副所长及中国遗传学动物遗传专业委员会主任，获得世界生物多样性研究领域最高奖项——世界生物多样性领导奖。

评奖委员会认为，张亚平的工作有助于提示动物的遗传多样性与物种濒危的关系，为制订有效可行的保护计划提供了科学依据，对中国主要家养动物的起源，不同民族人群基因多样性的研究，提示人类的扩散与迁移历史，也提供了新的线索。

Zhang Yaping, 37, has won the Biodiversity Leadership Award. Presently, he is the deputy director of Kunming Institute of Zoology of the CAS and dean of the Animal Genetics Committee of the Genetics Association of China. The vetting committee believed Zhang's studies have helped identify the relationship between genetic diversity of animals and extinction risk, therefore providing a scientific basis for effective conservation planning. He has also carried out research on the origins of the major domestic animals and the genetic diversity of different ethnic groups in China, providing new clues for tracing the origins and spread of Chinese people.

大公报 Da Kung Po 2002.10.12



海南省破获我国最大宗野生动物走私案 Largest seizure of smuggled wildlife in Hainan

2001年7月25日，海南省三亚市破获我国近年来最大宗的野生动物走私案，当时三亚天都的边警截停两辆以伪造军用证件登记的货车，共搜获566只水巨蜥(《濒危野生动植物种国际贸易公约II》)，259条缅甸蟒蛇(《濒危野生动植物种国际贸易公约附录一及二》)，5只穿山甲，168条亚洲眼镜蛇(《濒危野生动植物种国际贸易公约附录二》)以及2,956条灰鼠蛇，事件中有四人被捕。

On 25 July 2001, the country's largest-ever seizure of wildlife products was made when two lorries with false military registration number plates were stopped by border police at Tiandu Town in Sanya City, Hainan Province. Inside the vehicles were 566 Water Monitors *Varanus salvator* (CITES II), 259 Burmese Pythons *Python molurus* (CITES I/II), five pangolins, 168 Asian Cobras *Naja naja* (CITES II), and 2,956 Chinese Rat Snakes *Ptyas korros*. Four people were arrested.

Traffic Bulletin 2002年11月号第19卷第二期
Traffic Bulletin Vol. 19 No. 2 November 2002

海南尖峰岭热带森林成为国家级自然保护区 Hainan's Jianfengling Tropical Forest becomes a National Nature Reserve

经国务院审定，尖峰岭自然保护区近日升格为国家级自然保护区，其保护物件为热带原始林生态系统。至此，海南省已有6个国家级自然保护区。

经过多年呵护，天然林得以迅速恢复。从海滨沙滩至1,412米高的主峰，分布著7个植被类型，生物多样性和植被完整性尤为明显。生长著维管植物2,800多种，珍稀濒危植物31种，乔木400多种。

林区现有68种哺乳动物，215种鸟，38种两栖动物和50种爬行动物，另有4,000多种昆虫，其中蝴蝶449种。

Having been appraised by the State Council, Jianfengling Nature Reserve was upgraded to be National Nature Reserve. The main objective is to protect the tropical primary forest ecosystem. There are now 6 National Nature Reserves in Hainan.

After years of protection, its natural forest has recovered swiftly. From seashore sanddune to the 1,412m peak, seven vegetation types with remarkable biodiversity and vegetation integrity have been recorded. Among some 2,800 species of vascular plants recorded, there are 31 rare and endangered species 400 tree species, 68 mammal species, 215 bird species, 38 species of amphibians and 50 reptile species. There are over 4,000 species of insects including 449 species of butterflies.

华声报讯 *HuaSheng Monthly* 2002.08.13

人工湿地带来环保新革命 Artificial wetland brings about green revolution

科研人员利用深圳市区内洪湖公园的一块人工湿地，成功探索出一条低成本治理水污染的新途径，被国家环保总局列为今年12项国家重点环境保护实用技术示范工程之一。在这块占地2300平方米的人工湿地上，栽有芦苇、美人蕉等五六种热带和亚热带植物，花树成荫，下面铺有沙子、细石等填料。科研人员说，其水质已达到国家地面水标准，每日可处理污水1000吨。与同等规模污水处理厂相比，人工湿地的建设费、运行费只需1/2和1/5，成本大为降低。人工湿地选栽的植物和填料，可对污水产生化学、物理、生物等作用，污染物被削减，水质得到改善。

An artificial wetland has been created to treat water pollution at low cost in Honghu Park, Shenzhen. The wetland, 2,300m² in size, has about six species of tropical and sub-tropical plants, grown on a bed of sand and gravel. The selected plants and filling materials enable sewage to pass through a combination of physical, biological, and chemical processes that remove some of the pollutants and improve water quality. Each day 1,000 tons of sewage can be treated to meet national groundwater standards. The wetland costs only 50% as much to construct, and 20% to operate, as conventional sewage treatment plants of the same scale. It has been listed by SEPA as one of 12 key national projects to demonstrate practical technology for environmental protection.

金羊网—新快报 *Sin Kuai Bao* 2002.08.23

海南岛越冬候鸟惨遭猎杀 Winter birds in Hainan hunted

海南省西线高速公路上每天都有成群的农民手拿候鸟出卖。从10月8日开始，三亚市林业局采取行动，每天上路巡逻，几天来已没收秧鸡(又叫白面鸟，国家二级保护鸟类)280多只。许多农民以捕鸟为职业，使大量南下候鸟遭受灭顶之灾。

In Hainan, it is common for farmers to catch and sell wild birds on the western highway. From 8 Oct, Sanya Forestry Bureau conducted daily patrols there. Over 280 White-breasted Waterhen (National Protection II) were confiscated in a few days. Many farmers become full-time bird-trappers in winter and this severely impacts the wild birds.

中国青年报 *China Youth Daily* 2002.10.16

黑龙江鲟鳇鱼放流基地落户萝北 Sanctuary for Chinese Sturgeon established in Luo Bei

黑龙江鲟鳇鱼放流基地日前在萝北县落成。生长在黑龙江省的鲟鳇鱼，具有极其重要的经济和科研价值，1997年被国际濒危野生动物保护联盟列为「世界珍稀濒危水生野生动物」，是我国宝贵的自然资源。近年来，该省先后采取了建立自然保护区、设立常年禁渔区、开展人工增殖放流等一系列保护活动，以保持鲟鳇鱼资源的恢复和稳定。

The Nationally-protected Chinese Sturgeon (*Acipenser sinensis*) has been the recent focus of conservation activities in Heilongjiang. Nature reserves and fish sanctuaries have been established, while a programme of captive propagation and releasing into rivers has begun, to allow the recovery of depleted wild sturgeon populations.

大公报 *TaKungPao* 2002. 10. 24





近期刊印的出版物

A selection of recent publications

书籍及报告 Books and Reports

- Anon., 2002a. *Flora of China Checklist*. Published on the Internet: <http://mobot.mobot.org/W3T/Search/foc.html>
- Anon., 2002b. *Flora of China Manuscript*. Published on the Internet: <http://flora.huh.harvard.edu/china/>
- B. Krishnapillay, 2002. *A Manual for Forest Plantation Establishment in Malaysia*. (Malayan Forest Records No. 45). Forest Research Institute Malaysia. Malaysia. 286pp.
- Desai, P. and Riddlestone, S., 2002. *Bioregional Solutions for Living on One Planet*. Schumacher Briefings No. 8. Green Books, Devon, U.K., 109 pp.
- 韩剑准, 2001. 《海南树木奇观》。中国林业出版社, 北京。
Han Jian Huai, 2001. *Marvelous trees in Hainan*. China Forestry Publishing House; Beijing. (In Chinese).
- IUCN, 2002. *2002 IUCN Red List of Threatened Species*. Published on the Internet: <http://www.redlist.org/>
- 李光照, 2001. 《广西植物》- 广西猫儿山植物研究。《广西植物》编辑部, 广西。
Li Guangzhao, 2001. *Studies of Maoershan Plants*, Guangxi. Editorial Office of Guihaia; Guangxi.
- The Plant Names Project, 2002. *International Plant Names Index*. Published on the Internet: <http://www.ipni.org/>
- Lam K.S., 2002. *Freshwater Fish in Hong Kong*. Friends of the Country Parks, Agriculture Fisheries and Conservation Department and Cosmos Books, Hong Kong.
- 李振宇、解炎, 2002. 《中国外来入侵种》。中国林业出版社, 北京。
Li Zhenyu & Xie Yan, 2002. *Invasive Alien Species in China*. China Forestry Publishing House Beijing. (In Chinese).
- Xu Z., 2002. *A Study on the Biodiversity of Formicidae Ants of Xishuangbanna Nature Reserve*. Yunnan Science and Technology Press, Kunming.
- Young, J.J. and Yiu, V., 2002. *Butterfly Watching in Hong Kong*. Lepidopterists' Society and Wan Li Book Co., Hong Kong.
- 解炎, 2002. 《恢复中国的天然植被》。中国林业出版社, 北京。
Xie Yan, 2002. *Small booklet on vegetation restoration*. China Forestry Publishing House; Beijing. (In Chinese).
- 蒋有绪、王伯荪、臧润国、金建华、廖文波等, 2002. 《海南岛热带林生物多样性及其形成机制》。科学出版社, 北京。
Jiang Youxu, Wang Bosun, Zang Runguo, Jin Jianhua & Liao Wenbo, 2002. *Biodiversity and its Formation Mechanism of Hainan Tropical Forests*. Science Press; Beijing. (In Chinese).

Since 2001 Kadoorie Farm and Botanic Garden has published (in English) reports on the following areas of South China, based on rapid biodiversity assessments conducted since 1998. Copies of all these reports are available from the SCBCP office.

嘉道理农场暨植物园于 2001 年开始出版自 1998 年起在华南地区进行的快速生物多样性评审报告, 本园备有下列各期报告。

(NR = 保护区 Nature Reserve; NNR = 国家级保护区 National Nature Reserve.)

近期出版物

海南省 HAINAN

C Hainan: 南味岭 **Nanweiling** Forest Area (#1, 10pp.);五指山 **Wuzhishan NR** (#24, 36pp.)
W Hainan: 坝王岭 **Bawangling NNR** and 王下 **Wangxia** Limestone Forest (#2, 33pp.);佳西 **Jiaxi NR** (#25, 25pp.)
SW Hainan: 尖峰岭 **Jianfengling NR** (#3, 35pp.)
SE Hainan: 尖岭 **Jianling** and 上溪 **Shangxi NRs** (#21, 21pp); 铜铁岭 **Tongtieling** Forest Area and 兴隆 **Xinglong** Tropical Botanic Garden (#22, 20pp.); 吊罗山 **Diaoluoshan** National Forest Park (#23, 33pp.).

广东省 GUANGDONG

SW Guangdong: 七星坑 **Qixingkeng NR** (#4, 25pp.); 阳春百涌 **Yangchun Baiyong NR** (#5, 17pp.); 河尾山 **Heweishan** Forest Farm (#6, 17pp.);
W Guangdong: 鼎湖山 **Dinghushan** Biosphere Reserve (#7, 25pp.);
Shenzhen Special Economic Zone: 梧桐山 **Wutongshan** National Forest Park (#11, 24pp.);

N Guangxi: 木论 **Mulun NNR** (#13, 29pp.); 九万山 **Jiuwanshan NR** (#14, 21pp.);
NE Guangxi: 花坪 **Huaping NNR** (#15, 27pp.); 猫儿山 **Maoershan NR** (#16, 25pp.); 青狮潭 **Qingshitian NR** (#17, 14pp.);

广西省 GUANGXI

E Guangxi: 大瑶山 **Dayaoshan NR** (#18, 46pp.); 大平山 **Dapingshan NR** (#19, 17pp.);
SW Guangxi: 青龙山 **Qinglongshan NR** (#8, 8pp.); 春秀 **Chunxiu NR** (#9, 9pp.); 弄岗 **Nonggang NNR** (#10, 41pp.); 扶绥 **Fusui NR** (#12, 13pp.); 西大明山 **Xidamingshan** (#20, 19pp.).
NW Guangxi: 岑王老山 **Cengwanglaoshan NR** (#27, 61pp.);
W Guangxi: 底定 **Diding** Headwater Forest NR (#26, 20pp.); 大王岭 **Dawangling** Headwater Forest NR (#28, 20pp.).

科学文献 Scientific Papers

- Ding T., Liao, W.-B., Jin, J.-H. and Wang, B.-S., 2002. Floristic analysis on the seed plants of Mt. Diaoluo in Hainan Island. *Guihaia* 22(4): 311-319. (In Chinese with English abstract.)
丁坦、廖文波、金建华、王伯荪, 2002. 海南岛吊罗山种子植物区系分析。《广西植物》, 22(4):311-319。
- Dudgeon, D., 2002. An endemic enigma: the secret identity of Hong Kong's black paradise fish. *Porcupine!* 26, 8-9. (www.hku.hk/ecology/porcupine/)
- Fellowes, J.R., Lau, M.W.N., Dudgeon, D., Reels, G.T., Ades, G.W.J., Carey, G.J., Chan, B.P.L., Kendrick, R.C., Lee K.S., Leven, M.R., Wilson, K.D.P. and Yu Y.T., 2002. Wild animals to watch: terrestrial and freshwater fauna of conservation concern in Hong Kong. *Memoirs of the Hong Kong Natural History Society* 25, 123-159.
- Gallacher, D., 2002. The application of rapid bioassessment techniques based on benthic macroinvertebrates in East Asian Rivers (a review). *Internationale Vereinigung fuer Theoretische und Angewandte Limnologie Verhandlungen* 27, 3503-3509.
- Hau, B.C.H. and Corlett, R.T., 2002. A survey of trees and shrubs on degraded hillsides in Hong Kong. *Memoirs of the Hong Kong Natural History Society* 25, 83-94.
- Hill, R.D., Peart, M.R., Chau, L.K.C. and Hau, B.C.H., 2002. Growth, burning and survival of planted native tree seedlings on Hong Kong grassland slopes. *Memoirs of the Hong Kong Natural History Society* 25, 175-187.
- Jim, C.Y. and Xu, S.S.W., 2002. Stifled stakeholders and subdued participation: interpreting local responses toward Shimentai Nature Reserve in South China. *Environmental Management* 30, 327-341.
- Kwok H.K., 2002. Vertical stratification of the forest bird community in Tai Po Kau Nature Reserve. *Memoirs of the Hong Kong Natural History Society* 25, 161-167.
- Kwok H.K. and Lock N.Y., 2002. The bird community in lowland forest in Hong Kong. *Memoirs of the Hong Kong Natural History Society* 25, 169-173.
- Lazell, J.D., 2002. The herpetofauna of Shek Kwu Chau, South China Sea, with descriptions of two new colubrid snakes. *Memoirs of the Hong Kong Natural History Society* 25, 1-81.
- Lee, W.T.C., Chau, L.K.C. and Wu S.H., 2002. New records and clarification of some names of Pteridophyta in Hong Kong (III). *Journal of Tropical and Subtropical Botany* 10, 133-138.
- Neumann, M. and Dudgeon, D., 2002. The impact of agricultural runoff on stream benthos in Hong Kong, China. *Water Research* 36, 3103-3109.

下列两段文字分别由十八和二十世纪的顶尖生物学家撰写，反映出人类与热带森林的关系正在不断变化：从前人类只会敬畏大自然，时至今日竟成毁灭生态的元凶，并为此负上沉重的责任。

The following pieces were written before and after the 20th Century, by leading biologists of the day. They reflect our changing relationship with the great tropical forests: from awe to responsibility.

「对爱好大自然的学生来说，热带地区的植被定能引起他们无比的兴趣，不论是植物本身多变的形态与结构或是它们旺盛的生命力，皆使他们啧啧称奇。大自然更有助他们从创造万物的自然定律里不断探求知识。当旅客首次踏足这片原始森林，敬畏的感觉油然而生，犹如面对著渺无人烟的汪洋大海及高山雪地，只觉兴奋莫名。此时此刻，顿觉大自然的浩瀚辽阔、庄严伟大、阴沉幽郁、孤荒苍凉及人类的渺小，顷刻茫然失措，只有在定神以后，才得以细味各种特别的感觉，体验在他身边绽放著的那丰富多姿的生命气息。」

“To the student of nature the vegetation of the tropics will ever be of surpassing interest, whether for the variety of forms and structures which it presents, for the boundless energy with which the life of plants is therein manifested, or for the help which it gives us in our search after the laws which have determined the production of such infinitely varied organisms. When, for the first time, the traveller wanders in these primeval forests, he can scarcely fail to experience sensations of awe, akin to those excited by the trackless ocean or the alpine snowfields. There is a vastness, a solemnity, a gloom, a sense of solitude and of human insignificance, which for a time overwhelm him; and it is only when the novelty of these feelings have passed away that he is able to turn his attention to the separate constituents that combine to produce these emotions, and examine the varied and beautiful forms of life which, in inexhaustible profusion, are spread around him.”

节录自 Alfred Russel Wallace, 于 1895 年发表的《赤道植被》
Alfred Russel Wallace, 1895. Equatorial Vegetation.

「尝试重整热带森林不但未能确定生态修复的成效，而且成本高昂，意味著现时的「复修」成果大多只限于保护区内的细小地区或缓冲地带周边的地方。而对在某几个大区施行补种，其生物及商业效益仍有待验证。尽管只在面积较小的地区开始混合本土物种的人工植林区，但有越来越多的国家对比感兴趣。纵使人工植林区并不会恢复天然雨林生物关系，却可增加地貌的异质性，更可为区内的管理人员带来商业利益，因而改善区内的生态服务。恢复退化热带雨林方法的应用范围，除了考虑是否拥有当地生物或生态的知识外，亦须视乎个别地区的社会及经济状况。只可惜现时仍未找到可消除这些社会、经济及生态约束的可行方法。」

当今最大的疑问是究竟在过去五十年对大自然产生的巨大损害以及伐林等活动会否仍然持续下去，还是近年倡导的环保思想（如可持续利用森林资源、减少森林损耗）能遏制不继的人为破坏活动？而非洲中部及亚马逊河流域又会否重蹈亚洲森林的覆辙？尽管两地的森林资源丰富，伐林及破坏其他生

态的活动仍非常活跃。为此，生物学家请别再埋首脱离现实的研究工作，应著手启动自然保育工作。

“The ecological uncertainties involved in re-assembling a tropical rain forest, as well as the high cost of doing so, mean that most “restoration” efforts to date have been limited to small areas within nature reserves or in surrounding buffer strips. Enrichment planting has been carried out over some large areas, but its biological or commercial effectiveness has yet to be proved. Mixed-species plantation development using native species has been carried out over comparatively small areas to date, but it is attracting increasing interest in many countries. Such plantations do not restore the biological complexity of natural rain forests, but they do offer the possibility of increasing landscape heterogeneity and an improvement in ecological services over comparatively large areas because they provide a commercial benefit to land managers. The extent to which any of these ways of overcoming tropical forest degradation can be implemented in any particular region depends, of course, on social and economic circumstances as much as on biological or ecological knowledge. Ways have yet to be found to integrate these social, economic, and ecological constraints.

The big question today is whether the enormous damage and deforestation that has occurred primarily during the past fifty years will continue, or whether recent initiatives to achieve sustainable use and curb forest loss will stem the tide. Will the mistakes made largely in the forests of Asia be repeated in central Africa and Amazonia? Despite the biological riches these forests contain, current rates of degradation and deforestation remain tragically high. Biologists should no longer indulge in the luxury of research that is largely disengaged from these unfolding events.

节录自 D. Lamb and T.C. Whitmore, 于 2002 年发表的《确保热带雨林拥有可持续的未来》。
D. Lamb and T.C. Whitmore, 2002. Securing a sustainable future for tropical moist forests.

上述文章均节录自芝加哥大学出版、R.L. Chazdon and T.C. Whitmore 主编的《热带森林生物学的文献汇编》。
Both excerpts from R.L. Chazdon and T.C. Whitmore (eds.), *Foundations of Tropical Forest Biology – Classic Papers with Commentaries*. The University of Chicago Press, Chicago & London.

切莫插手『自然保护区』

Hands off the “Nature Reserves”

沈孝辉 在授权下转载自《中国国家地理杂志》
2002. 11 (总第 505 期)

Shen Xiaohui Extracted with permission,
from Chinese National Geographic Nov 2002 (Issue 505)

．．．．．在经济开发的热潮中，我国一些具有世界意义的自然保护区，正面临著被“开发”掉的危险，而盲目的旅游开发则首当其冲。

从自然保护区的旅游产生出一定的经济效益和社会效益时起，一些地方政府和旅游管理部门便开始千方百计地插手自然保护区，有的要求“资源共享”，分一块蛋糕；有的胃口更大，想把蛋糕整个儿吞掉，通过改变旅游管理体制，由原来的自然保护区管理变成地方政府或旅游部门管理。虽然满脑子惦记著保护区，唯独忘却了最重要的一项政府工作：保护好自己保护区。在层层权力的重压之下，那些坚守净土的自己保护区，显得是如此无助！

．．．．．实践证明，不同的管理体制必然带来不同的结果。凡事有主有次，当人们为了追求某种利益，就会主次颠倒。规划建立自然保护区的根本宗旨是保护典型的有代表性的自然综合体，保护自然综合体中的各个生态系统功能的完整性和物体进化的延续性。这同规划建立的风景区的目标和宗旨是截然不同的。因此，自然保护区的旅游管理不同于一般风景区的旅游管理。当自然保护区负责区内的旅游管理，自然有能力将旅游管理与资源保护、护林防火三者有机地结合起来，避免旅游开发的盲目性与扩大化；同时，又可以把旅游收入用于自然保护事业。如果让旅游或其他政府部门插手自然保护区的旅游管理，那就不仅不可能贯彻“保护第一、旅游服从保护”的指导思想，而且势必与自然保护区管理部门人为造成矛盾对立，既打击了自己保护管理部门与护林防火的积极性，同时，旅游收入全部或大部被拿走，又置自然保护区的经济于危难境地，自然保护区守著金饭碗要饭吃，如果要不著或要不够，为了维护自身的积极性，同时，旅游收入全部或大部被拿走，当然是无

...Ecotourism is often seen as a way to finance environmental conservation. In the heat of economic development, such tourism is now encroaching on some of our nation's nature reserves of global significance - with the risk of destroying them.

Having discovered that certain economic and social benefits can be generated from ecotourism, some local governments and tourism authorities have started interfering in the operation of nature reserves. Some request the sharing of resources, while some even seek to change the management system, to be run by local government or local tourism board instead of the nature reserves management office. Though their minds are filled with the business of nature reserves, they seem to have forgotten the ultimate goal of establishing them – to better conserve nature. With pressure to ‘open up’ nature reserves, those reserves that have succeeded in their goal of nature conservation now appear particularly vulnerable.

...Empirical examples prove that different management systems bring different outcomes. When people are in enthusiastic pursuit of specific interests, they will readily reverse priorities. Nature reserves are fundamentally designated for conserving typical and representative biomes, in order to preserve the functional integrity of all ecosystems and the continuity of evolution. The aims and targets of tourism in nature reserves are different from those of scenic-spot tourism, and thus different management systems should be applied. If an ecotourism operation is run by the reserve management authorities, they might seek to integrate tourism management (e.g. tourist guidelines and regulation) with wildlife and forest protection, preventing the industry's over-

助于自然保护事业。

人们曾经认为，生态旅游是一种对自然环境不构成破坏或者破坏无微的“无烟工业”。事实却是，不当的旅游开发和旅游设施建设，以及缺乏生态学理论指导的旅游管理，都会给自然保护区景观和生物资源带来重大的甚至是无法挽回的破坏。例如：在自然保护区内大兴土木修筑宾馆、饭店、招待所、架空空中缆车索道、铺设硬质路面，都会严重损害自然景观与自然美，并对野生动物的迁移与繁殖产生负面影响，一切使用燃油的车和船、高强度的游人活动，也都将造成环境污染，造成生态系统的退化。

长期以来，我国自然保护区与森林公园的旅游被视作经营性、企业性的产业，因而受到利益驱使，重创收轻扶持，重经营轻保护·····故此，实须把保护区纳入社会和经济发展规划，强调其旅游管理与资源保护管理的一致性和不可分割性。

·····自然保护区不是摇钱树。其旅游只有有助于推动自然保护事业才是成功和有存在必要性的。在自然保护区中，破坏常是“开发”的挛生兄弟。我们只要杜绝在“开发”、“建设”等等名义下对自然保护区原始生态的干扰，保护其原生状态，就是政绩卓著，就是公德无量。

编者按：

中国建设部于1994年颁布「自然保育优先」政策，保护全国的风景区，并指出它的主要功用在于保护生态环境及生物多样性。

expansion and deleterious impacts.They can also use the revenue generated to finance nature conservation. By contrast, if a tourism authority or other government sector runs the tourism operation, it is unlikely they will comply with the ultimate goal of nature conservation; tourism income may well be diverted and conflicts generated between the two management agencies. Such inconsistency in internal management approach, and lack of revenue for reserve management, will have negative consequences for wildlife and forest conservation.

Ecotourism was once regarded as a smokeless industry with no impact on nature. However, this is not the full picture. More tourism activities will certainly lead to some environmental degradation and disturbance to wildlife - increased pollution from transportation, improvements of the road system, construction of cable cars, building of multi-storey guesthouses and restaurants to house these visitors; all will cause serious and even irreversible damage to the natural landscape and biological resources in the reserve.

Tourism in nature reserves and forest parks has always been commercial business; hence the priority of conservation is sometimes sacrificed. As a source of financing nature conservation, ecotourism should always make nature conservation the priority and involve local people to increase their income. ...There is a great need to integrate ecotourism into social and economic development planning, and stress the importance and priority of integrating nature conservation into ecotourism.

...Nature reserves should not be seen as money-generating ventures. In nature reserves, ecotourism is an aid to conservation and natural resource management, or else it has no value. In nature reserves, destruction is closely linked with “construction”. Only when we stop the destruction of nature reserves under the banners of “construction” and “development”, and strive to preserve pristine ecosystems in the reserves, can we make nature conservation a reality.

Editor's Note:

In 1994 the Ministry of Construction issued a policy of “conservation first” for scenic spots in China, noting their most important function was to protect the ecological environment and biological diversity.

《森林脉搏》投稿须知:

Author Guidelines:

- 1. 华南生物多样性保育计划每年均出版两期《森林脉搏》，这本通讯汇集了华南地区多样性保育工作的文章、新闻和最新动向。凡从事与此有关的学者、科研人员、自然保护区的管理人员，以及学生等都欢迎投稿。

Living Forests is a biannual magazine for biodiversity in South China. We welcome submissions by academicians, scientists, nature reserve professionals, and students dealing with issues relating to our topics.

- 2. 除《森林脉搏》编辑要求外，所有来稿均以 500 字为限。
Articles should be no more than 500 words, unless requested otherwise by the editors of Living Forests.

- 3. 来稿字体务必以双行间距，随稿须连附作者联络资料。
Articles should be typed double-spaced and accompanied by the author's contact information.

- 4. 请随来稿附上不多于两张相片及其说明。
A maximum of 2 photos and the captions should be accompanied with the article, unless otherwise requested.

- 5. 如欲索取本刊物或投寄稿件，请联络:
For a copy or to send submissions, please contact:
香港 新界
大埔 林锦公路
嘉道理农场暨植物园
《森林脉搏》编辑部 吴狄姬
或电邮：
www.dickkei@kfbg.org 或 scbt@kfbg.org
Miss Norris Ng
Living Forests
Kadoorie Farm and Botanic Garden
Lam Kam Road, N.T., Hong Kong SAR
or by email