

洞庭湖

脊椎动物监测及

鸟类资源

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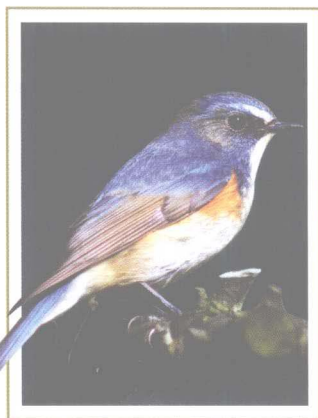
MONITORING OF VERTEBRATE AND
BIRD RESOURCES IN
DONGTING LAKE

□ 邓学建 著

□ 湖南师范大学出版社

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邓学建 著

◇策划编辑: 周玉波 李文邦 宋 瑛

◇组稿编辑: 宋 瑛 李 阳

◇责任编辑: 宋 瑛

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前言

具有8 000年稻耕历史的洞庭湖，北通巫峡，南极潇湘，土地肥沃，气候适宜，资源丰富，素享“鱼米之乡”的美誉。其涉及的地域仅占湖南省土地面积的14.9%，却养育着湖南省22.9%的人口，在湖南省的轻工业、农业、航运、水源等方面扮演着重要角色，尤其在湖泊调蓄、缓解洪灾、调节气候、改善环境、净化水质等方面发挥着巨大的生态服务功能。

洞庭湖曾是中国的第一大淡水湖，盛期面积达6 000 km²以上，近百年来，在自然和人为活动的双重作用下，沧桑变迁，洪灾连连，湖泊发生了巨大变化，湖泊面积萎缩至2 625 km²，退居为我国的第二大淡水湖泊。1998年洪涝灾害后，中国政府制定了“封山育林，退耕还林；平垸行洪，退田还湖；以工代赈，移民建镇；加固干堤，疏浚河湖”的“32字”方针。洞庭湖区各级政府随即积极实施“退田还湖，平垸行洪”工程，平退堤垸314处，平退面积1 578.7 km²，使洞庭湖面积达到3 968 km²。最新规划到2010年使洞庭湖面积恢复到4 350 km²，达到新中国成立初期的天然湖泊面积。虽然人们已经认识到洞庭湖这片湿地的重要性，采取了各种方式和措施加以保护和恢复，可是由于习惯势力的影响，人们仍然注重湖区的资源价值，忽视湿地的生态价值，注重当前的利益，忽视长久的发展，利用着最先进的技术，以最大强度向洞庭湖索取资源，使得洞庭湖不断朝着破碎化、陆地化的方向发展，洞庭湖的资源日趋枯竭，突发性灾害时有发生。

洞庭湖生物多样性的重要意义体现在两方面。第一，它是长江大量特有水生物种的栖息地，有利于许多鱼类如中华鲟、白鲟以及软体动物、甲壳类和其他无脊椎动物的生长繁殖。虽然在城陵矶等地发现的白暨豚已宣告消失，但是江豚仍能经常发现。第二，开阔的滩涂、草滩和周边的湿地是迁徙涉禽和水鸟的越冬地。无论是鱼类还是迁徙鸟类，它们受到的威胁是多样的，包括污染、非法和过度捕捞、挖沙、入侵物种、水产养殖、水文变化、航运干扰、杨树和芦苇种植等，同时上游的库坝建设使其生长区与繁殖区相隔离。种种的威胁因素无法或者很难通过建立保护区得到有效的解决，目前洞庭湖四个保护区在禁渔期实施了禁渔，但电鱼、密网捕鱼并



不难见,偷捕猎杀的事件也时有发生,加之为数不少的群众在保护区的实验区和缓冲区内开展经济活动,甚至还在核心区内开展了活动,使得湿地保护的效果难以保证。要解决这一问题,只靠某一个部门或单位是无法实现的,只有环保、农业、林业、渔政、水利和当地的乡镇、农场等联合行动,由省级机关和国家层次的部门相互合作,携手管理,才能使洞庭湖区域的生物资源得到保护,走可持续发展的道路。

鉴于此,各级政府对洞庭湖的问题非常关注,试图寻找到一条既有利于当地经济发展,又使洞庭湖湿地不受破坏的可持续发展道路。开发力度多大、向洞庭湖索取多少资源才是最合理的,成为了目前急需探索的关键问题。为了向决策部门提供科学可靠的依据,联合国开发计划署、全球环境基金和中国政府共同实施了“中国湿地生物多样性保护与可持续利用项目”。基于《国务院办公厅关于加强湿地保护管理的通知》的初衷——使湿地生物多样性保护成为国家、省和地方政府决策和行动的日常考虑内容。该项目办在国家层次、一个项目省和四个具有全球生物多样性重要意义的示范区(黑龙江东北部的三江平原,跨越四川、甘肃两省的若尔盖高原泥炭沼泽,湖南洞庭湖以及江苏盐城)开展活动。其中由湖南省林业厅牵头开展的洞庭湖湿地生物多样性保护与可持续利用项目做了大量基础性工作,湖南师范大学、湖南省林业科学院、中南林业科技大学等单位参与洞庭湖生物多样性监测,主要负责制定一整套切实可行的洞庭湖生物多样性监测方案,旨在揭示洞庭湖湿地生物多样性变化规律以及变化趋势,为政府决策者、自然保护区管理部门提供基础资料及决策依据。

本书主要分为两部分,第一部分介绍了脊椎动物监测的方法和工具以及二十多个能够覆盖和代表整个洞庭湖的监测点,第二部分介绍了监测的255种鸟类的形态特点和居留情况。

本书是在国际环境基金(GEF)资助下完成的,没有他们的支持,不可能出版,至少不可能有如此精美的版本。在该书编辑出版过程中,得到了湖南省林业厅领导,特别是野生动植物保护处的大力支持和帮助,由于他们的无私支援,本书才得以圆满完成。另外,湖南师范大学生命科学学院的王斌博士长期以来一直与本人一起从事野外研究工作,在工作中我与他情同手足,在生活上也备受他的照顾,该书也体现着他的一份功劳。湖南师范大学生命科学学院动物学系的米小其、周毅、牛艳东和任巍等研究生在本书的图片收集、文字校对、索引编制等方面做了不少工作。该监测项目的执行过程中,得到了东洞庭湖、横岭湖、南洞庭湖和目平湖四个保护区领导及工作人员的鼎力相助,在他们的努力下,该项目才得以完成。特别要感谢的是中国科学院动物研究所的何芬奇先生,他一直很关心湖南的鸟类研究和鸟类资源保护工作,曾多次来湘指导工作,他还提供了全部的鸟类图片,才使本书得以图文并茂。书中的鱼类图片出自



《湖南鱼类志》，在此深表谢意！

书中的鸟类照片均由东洞庭湖的姚毅先生以及李剑志、郑永富、陈建中、陈桐清、廖晓东、朱英、李飞云、王吉衣、郑康华、江航东等热心提供，这两百多张精美的照片张张都浸透着他们的血汗，是他们不畏艰辛，长期徒步在湖边岸头进行拍摄，才向我们展示了洞庭湖鸟儿的魅力。

我还要感谢我的家人对我的大力支持，每当我挑灯疾书时，是我的爱人为我沏茶送水，是她第一个品读和修改我枯燥的专业拙著。

最后，本书的出版还得到湖南师范大学出版社的大力支持，在此深表感谢！

邓学建

2007年8月16日





FOREWORD

Boasting a history dating back 8,000 years, Dongting Lake has long been known as a centre of fish and rice. It has a favorable location, connecting with Wu Gorge to the north and the Xiang River as well to the south. In addition, it enjoys fertile land, a comfortable climate, and abundant resources, which has made it a prosperous and highly populated region. Although Dongting Lake basin covers only 14.9% of the territory of Hunan's Province, it feeds 22.9% of Hunan's population and plays a paramount role in Hunan's light industry, agriculture, shipping, and water conservancy. Particularly, the lake generates tremendous eco-service through containing and releasing floodwaters, reducing flood surges, adjusting the climate, improving the environment, and purifying water.

Once the largest fresh water body in China, Dongting Lake culminated in an area of some 6,000 km². Unfortunately, under the dual stresses of over a century of both natural and anthropological activities, a recurrent pattern of terrene transformation followed by devastating floods appeared, and consequently the size of the lake shrank drastically to just 2,625 km², so that currently Dongting Lake ranks second to Poyang Lake in size. In the wake of the unprecedented deluge of catastrophic proportions in 1998, the central government initiated a policy of post-disaster reconstruction and eradication of the looming threat of flood inundation. The policy, dubbed the "32 Character Policy", is summarized in 32 characters, translated literally as "close off hills to facilitate afforestation, reverse slope cultivation to create forests, raze dikes to make space for floodwaters, revert fields to lakes, provide relief through implementation

of projects, relocate and establish towns in safe places, reinforce the dikes, dredge the rivers and lakes". Subsequently the project, with an emphasis on razing dikes to make space for floodwaters and reverting fields to lakes, was implemented in the Dongting Lake region. The restoration initiative intends to return 314 polders to the lake, with an area of 1,578.7 km². If this is accomplished, the area of Dongting Lake will top 3,968 km². A revised plan further increased the envisioned area of the lake, with an ambitious goal of 4,350 km² of natural body, as large as in the early years after the foundation of the People's Republic of China. Despite the public's awareness of the importance of the Dongting Lake wetland, and the adoption of various methods and measures for protection and restoration of the wetland, the local population still pay more attention to the value of the lake resources and less to the ecological value of the wetland, prizing the short term benefits and neglecting long term benefits, due to the influence of conventional thinking. Worse, cutting edge technology has been applied to fully exploit the resources in Dongting Lake. As a result, Dongting Lake has undergone fragmentation and terrene transformation, the resources in Dongting Lake are gradually draining away, and unexpected calamities occur from time to time.

The findings of years of research indicate that the significance of the biodiversity maintained in Dongting Lake is embodied in two main aspects. For starters, it is the habitat of a magnitude of aquatic species. An array of fish, including Chinese sturgeon, white sturgeon (on the verge of extinction), mollusks, crustaceans, and other invertebrates survive here. Despite the discouraging reported extinction of the Yangtze River dolphin, which was first found in Chenglingji, the black finless porpoise can still be readily spotted. Secondly, far-flung stretches of beach, grassland and peripheral wetlands provide over-wintering habitats for migratory wading birds and waterfowl, particularly some endangered species. Both the fish and migratory birds are threatened by diverse factors, including pollution, illegal and uncontrolled poaching, sand digging, invasive species, aquaculture, hydrological upheaval, disturbance from shipping, and sprawling poplar and reed plantations, etc. In addition, the Three Gorges Dam in the upper reaches of the Yangtze River separates fish development zones from their reproduction zones. These threatening factors cannot be easily uprooted simply through the establishment of nature reserves and legislation. During the fish ban period, though piscary is forbidden in the current four nature reserves within Dongting Lake, poaching, illegal harvesting



and hunting occur at various times. In addition, electrofishing and fishing with fine mesh nets are common sights. Moreover, a sizeable number of farmers carry out economic activities in the experimental zone and buffer zone, some even in the core zone. All these undermine the effect of the wetland conservation. Obviously the effort of a single department or institution is not strong enough to address all these issues. Only through joint action of the sectors of environment, agriculture, forestry, fishing administration, and water conservancy together with local townships, and cooperation in management between central and provincial levels, can the biological resources be effectively preserved and sustainable development realized.

Therefore, government at various levels attaches great importance to the Dongting Lake issue, and is striving to explore a sustainable development path which would benefit local economic development, and at the same time do no harm to the integrity of the Dongting Lake wetland. The intensity of development and extent of resource exploitation constitute the critical questions to be delved into and answered in the near future. To promote wetland protection in China, the ongoing project entitled “Wetland Biodiversity Conservation and Sustainable Use in China” is being implemented by the Chinese Government, supported by the Global Environmental Facility (GEF), managed through UNDP. This project shares the goal of the circular issued by the State Council on “Strengthening Wetland Management and Protection”, that is, the establishment of wetland biodiversity as a routine consideration in governmental decision-making and action at both central and provincial levels. The ongoing project is being implemented at state and provincial level, and in four demonstration sites with biodiversity of global significance (Sanjiang Plain in the northeastern Heilongjiang Province, Ruorgai Plateau peat land bordering

both Sichuan Province and Gansu Province, Dongting Lake in Hunan Province, and Yancheng in Jiangsu Province). Under the guidance of the Forestry Department of Hunan Province, a plethora of project activities have been carried out. Experts recruited from Hunan Normal University, Hunan Forestry Academy, and Central South University of Forestry and Technology forged the biodiversity monitoring protocols for Dongting Lake, with the aim of understanding the dynamics and development trends of the biodiversity of the area, providing data and policy guidelines for governmental decision-makers, nature reserves and relevant management and



conservation sectors and agencies.

This present book consists of two parts. This first part provides an account of the methodology and tools for monitoring vertebrates, plus some 20 monitoring sites covering and representing the whole of Dongting Lake. The second part describes the morphological features of the indicative species respectively identified from monitoring the birds and fish in Dongting Lake.

This book was only made possible under the auspices of the ongoing GEF project. At the very least, without the financial aid provided, such an excellent version could not have been produced. I thank the regulators from the Forestry Department of Hunan Province, particularly the Wildlife Protection Division, for their great support and assistance rendered throughout the process of manuscript preparation and publication. I would like to thank Dr. Wang Bin, from the Life Science College, Hunan Normal University. We have jointly conducted a multitude of research on wildlife, working side by side with a single vision, and I have been lucky to have his care and support. His assistance contributed greatly to the accomplishment of this book. Appreciation is also extended to Mr. Mi Xiaoqi, Ms. Zhou Yi, Mr. Niu Yandong, and Ms. Ren Wei, from the Life Science College, Hunan Normal University, for their efforts in collection of pictures, proofreading, and indexing. Furthermore, I am appreciative of the regulators and staff from the four nature reserves, East Dongting Lake National Nature Reserve, Hengling Lake Provincial Nature Reserve, South Dongting Lake Provincial Nature Reserve, and Muping Lake Provincial Nature Reserve, who spared no effort to help the author. I would like to express special thanks to Mr. He Fenqi, from the Institute of Zoology, Chinese Academy of Science, who provided all the drawings of the birds, which helped create this illustrated book. In addition, Mr. He has long been interested in Hunan's bird research and conservation and came over to supervise research on several occasions. I acknowledge that the drawings of the fish in this book were copied from *Piscine Fauna of Hunan Province*.

I am also grateful to Mr. Yao Yi, from East Dongting Lake National Nature Reserve, Mr. Zhen Yongfu, Mr. Chen Jianzhong, Mr. Chen Tongqing, Mr. Liao Xiaodong, Ms. Zhu Ying, Mr. Li Feiyun, Mr. Wang Jiyi, Mr. Zhen Kanghua, and Mr. Jiang Hangdong for providing more than 200 beautiful bird photographs, demonstrating the individual charm of the birds inhabiting Dongting Lake, each one is the product of sweat and toil, as, fearing no hardship, they staked out the waterside.



Above all, I cannot thank my family members enough for their emotional and down to earth support, particularly my wife, who never failed to serve me tea and refreshments whenever I worked late into the night, and reviewed and fine-tuned the manuscript before anybody else.

In the last analysis, I owe deep thanks to the staff from the Publishing House of Hunan Normal University for their aid.

(Translated by Mr. Xu Yongxin, and Mr. Dan Alderson, from Hunan University of Science and Engineering.)

Deng Xuejian

August, 16, 2007



目 录



第一部分 洞庭湖脊椎动物监测方案

一、监测目的	2
二、监测时间	2
(一) 鸟类监测时间	2
(二) 其他动物监测时间	3
三、监测对象	3
(一) 鸟类监测内容	3
(二) 鱼类监测内容	4
(三) 两栖动物、爬行动物和哺乳动物监测内容	14
四、监测对象反映的环境问题	16
(一) 鱼类监测物种反映的环境变化情况	16
(二) 鸟类监测物种反映的环境变化情况	18
五、检测点的主要设备及使用方法	20
(一) 望远镜	20
(二) GPS (手持地面卫星定位仪)	21
(三) 数码摄像机	24





(四) 数码照相机	26
(五) 声音采集器	27
(六) 捕鸟工具	28
(七) 猎枪	28
(八) 显微镜	31
(九) 环志工具及方法	32
(十) 主要渔具	35
(十一) 常用容器及药品	35
(十二) 监测记录表及汇总	35
(十三) 统计软件	40
(十四) 交通工具	40
六、标本制作技术	40
(一) 剥制标本的制作方法	40
(二) 浸制标本的制作方法	42
七、鱼龄鉴定的方法	43
八、监测方法和统计方法	44
(一) 绝对数量统计法	44
(二) 样带法(截距法)	45
(三) 样方法	45
(四) 标志重捕法	45
(五) 去除取样法	46
(六) 市场调查法	46
(七) 密度统计	46
(八) 频度统计	46
(九) 相似性统计	47
(十) 多样性系数统计	47
(十一) 均匀度系数	47
九、监测地点	47
(一) 东洞庭湖保护区	48
(二) 横岭湖保护区	48
(三) 南洞庭湖保护区	48
(四) 西洞庭湖保护区	48

十、调查报告的内容.....	48
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第二部分 洞庭湖鸟类资源

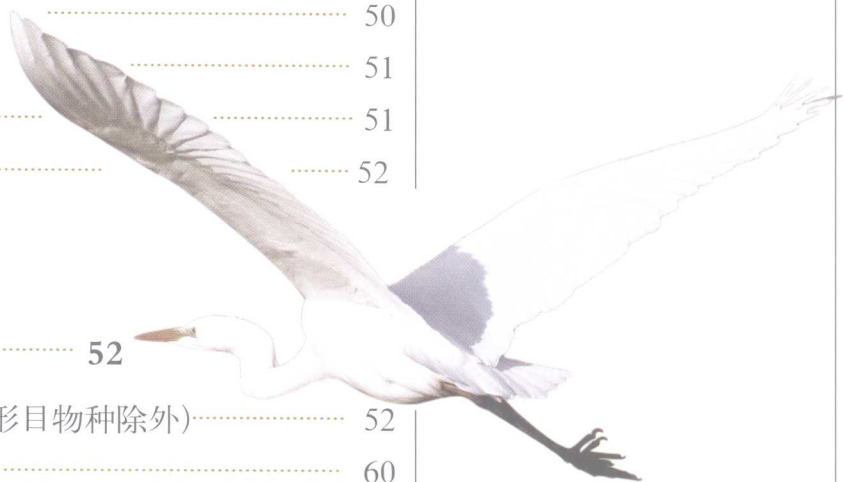
一、鸟类识别技巧.....	50
---------------	----

(一) 根据环境和地理了解鸟类.....	50
(二) 根据鸟类的外形特征识别.....	50
(三) 根据鸟类的鸣叫声识别.....	51
(四) 根据鸟类的行为习性识别.....	51
(五) 根据鸟巢识别.....	52

二、洞庭湖鸟类野外识别特征.....	52
--------------------	----

(一) 国家一、二级保护物种(隼形目和鸮形目物种除外).....	52
(二) 生境指示物种.....	60
(三) 敏感物种.....	70
(四) 优势物种.....	72
(五) 顶级物种.....	77
(六) 特殊物种.....	86
(七) 其他鸟类物种.....	87

鸛鷗目.....	88
鸛形目.....	91
雁形目.....	99
鸡形目.....	109
鹤形目.....	112
鸨形目.....	118
鸽形目.....	145
鹃形目.....	148
夜鹰目.....	153
雨燕目.....	156
佛法僧目.....	159
戴胜目.....	164
鹭形目.....	166
雀形目.....	171



附录一	洞庭湖鸟类英文、拉丁文、中文名对照	209
附录二	洞庭湖鸟类拉丁学名索引	216
附录三	洞庭湖鸟类中文名索引	221
附录四	洞庭湖鱼类监测框架表	224
附录五	洞庭湖鸟类监测框架表	225
参考文献		226



Part one

第一部分

洞庭湖脊椎动物监测方案



联合国开发计划署、全球环境基金和中国政府共同实施的“中国湿地生物多样性保护与可持续利用项目”，基于《国务院办公厅关于加强湿地保护管理的通知》的初衷——使湿地生物多样性保护成为国家、省和地方政府决策和行动的日常考虑内容。为实现该目标，项目将促使各部门在决策和行动时制定、采纳和应用湿地生物多样性保护标准，使他们参与湿地生物多样性保护。项目将在国家层次、一个项目省和四个具有全球生物多样性重要意义的示范区开展活动，湖南洞庭湖就是其中之一。

该监测受国家项目主任（NPC）的领导，并受湖南省项目协调员、洞庭湖项目点成果协调员的直接管理。首席技术顾问（CTA）对任务分配和工作进展进行经常性的检查。

一、监测目的

1. 了解洞庭湖脊椎动物资源现状及变化趋势，并分析其变化的原因。
2. 为政府决策者、自然保护区等相关管理、保护部门、机构提供基础资料及决策依据。

二、监测时间

（一）鸟类监测时间

冬季：12月至次年2月，选择风和日丽的天气，于7至10时或者16至18时在观察点（线路）观察计数，以连续三天观察到的鸟类物种和数量变化小于5%为准。

春夏季：4月至6月，选择风和日丽的天气，于7至10时或者16至18时在观察点（线路）观察计数，以连续三天观察到的鸟类物种和数量变化小于5%为准。