

鄱阳湖湿地和水鸟的 生态研究

李凤山 刘观华 吴建东等 主编

ECOLOGICAL STUDY OF WETLANDS AND
WATERBIRDS AT POYANG LAKE



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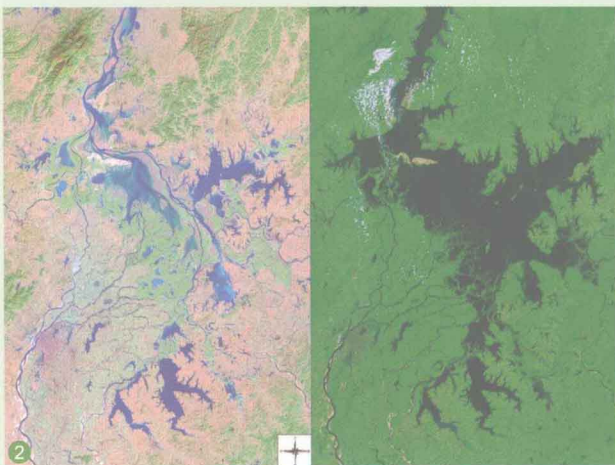
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序

国际鹤类基金会副主席 吉姆·哈里斯

鄱阳湖是中国最大的淡水湖泊，以其极其丰富的鸟类资源而闻名于世，每年有成千上万的迁徙候鸟到鄱阳湖越冬。据多年统计，每年平均在鄱阳湖越冬的水鸟有 40 多万只，使鄱阳湖成为东亚最为重要的水鸟越冬地。很多的越冬水鸟都是稀有和濒危的物种（马克·巴特等，2004；马克·巴特等，2005；Ji et al., 2007；Qian et al., 2009），其中包括占全球种群 99% 的极危物种^①白鹤 *Grus leucogeranus*、90% 的濒危物种东方白鹳 *Ciconia boyciana*，50% 的易危物种鸿雁 *Anser cygnoides* 和白枕鹤 *Grus vipio* 在这里越冬。长江中下游两个冬季的水鸟调查结果表明，鄱阳湖有 12~15 个物种占该迁徙路线水禽种群的 1% 以上。

鄱阳湖栖息着众多其他水生动物，很多都是珍稀动物，包括易危物种江豚 *Neophocaena phocaenoides asiaeorientalis*（世界上唯一的淡水鼠海豚）和河鹿 *Hydropotes inermis*。鄱阳湖有 122 种鱼类（《鄱阳湖研究》编辑委员会，1988），包括极危的中华鲟 *Acipenser sinensis* 和白鲟 *Psephurus gladius*，白鲟是世界上最大的淡水鱼类之一，或许已经灭绝了。在这 122 种鱼类中，30 种属于江西省省级保护鱼类。

鄱阳湖地域博大、水位变化剧烈，孕育着丰富多彩的生命。夏季，鄱阳湖的水面积达 4000km²。秋季，湖水水位下降，大面积滩地显露出来，形成众多的子湖。这种剧烈的水文变化是鄱阳湖生态系统功能得以发挥的重要驱动力，使鄱阳湖湖区形成了多种类型的生境，支持着丰富的生物多样性。也由于水位的季节变化，鄱阳湖形成了两个相互独立的湿地生态相：一个是亚热带植被占优势的群落，在炎热的夏季，其生产力最大；另一个是温带植被占优势，它们主要生长于清凉的冬季。不同的物种利用不同的生态类型，造就了几乎全年的生产力和丰富多样的生命。

鄱阳湖承纳五河来水，流域面积为 162225km²，几乎覆盖了江西省疆域的整个面积（《鄱阳湖研究》编辑委员会，1988）。另外，鄱阳湖也是一个

① 物种濒危等级依据 2010 年 IUCN 出版的红皮书的标准。

季节性的江水倒灌型系统，加剧了年水文变异的复杂性。洪水和干旱的周期也意味着鄱阳湖年复一年的剧烈变动。

对鄱阳湖及其水文和鸟类已有很多研究，但是少有长期的野外监测。鄱阳湖国家级自然保护区和国际鹤类基金会共同开展了十一年的生态监测项目，收集了水鸟以及其他湿地环境因子变量的数据。这些监测数据有助于我们理解水鸟和湿地之间的生态关系。另外，由于鄱阳湖水文条件在年内和年间的巨大变异性，这些数据将随着今后监测数据的积累而愈显重要。

本书在江西鄱阳湖国家级自然保护区和国际鹤类基金会共同主持下完成，详细地介绍了鄱阳湖湿地生态监测活动和监测成果，帮助人们研究和了解鄱阳湖的水鸟、水生植物，以及野生动物和湖区人民赖以生存的湿地资源。鄱阳湖对于江西人民有着极其重要的经济价值，因此平衡鄱阳湖生态和经济价值是一个复杂而又基本的任务，以便更好地维持鄱阳湖对于湿地生物多样性保护和经济发展的特有效益。我们收集的水鸟和其环境因子数据对于评估鄱阳湖发生的变化，制订保障鄱阳湖多种功能的决策等方面有着越来越重要的意义。我们编撰本书的目的是协助资源管理者、研究工作者、政策制定者、媒体以及其他关注鄱阳湖的人们做出明智的决策，使鄱阳湖有一个光明美好的未来。

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Preface

By James Harris, Senior Vice President
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Poyang is the largest freshwater lake in China and globally famous for its birdlife. The rich food resources provided by this wetland's emergent and submerged aquatic plant diversity is a major reason that hundreds of thousands of migratory birds travel to Poyang every winter. While winter counts vary from year to year, on average more than 400,000 waterbirds make Poyang their winter home-thus Poyang is by far the most important wintering area for waterbirds in East Asia, including many rare and threatened species (Barter et al. 2004, Barter et al. 2005, Ji et al. 2007, Qian et al. 2009). For example, over 99% of the world population of Critically Endangered^① Siberian Cranes *Grus leucogeranus* winter at Poyang, and over 90% of the world's Endangered Oriental Stork *Ciconia boyciana*. Half of the world's Vulnerable Swan Geese *Anser cygnoides* and Vulnerable White-naped Cranes *Grus vipio* winter here. In two years of winter waterfowl surveys in the middle and lower reaches of the Yangtze River Basin, Poyang Lake supported 12 – 15 species with more than 1% of regional waterbird populations.

Poyang Lake is home to many other aquatic animals that depend upon its wetlands, including the Vulnerable Finless Porpoise *Neophocaena phocaenoides asiaeorientalis* (the only freshwater porpoise in the world) and the Vulnerable Chinese Water Deer *Hydropotes inermis inermis*. 122 fish species have been recorded at Poyang (Editorial Committee of Studies on Poyang Lake 1988), including the Critically Endangered Chinese Sturgeon *Acipenser sinensis* and Critically Endangered Chinese Paddlefish *Psephurus gladius*, one of the largest freshwater fish species in the world and possibly extinct, and 30 species protected by Jiangxi Province.

Poyang has such abundance of life due to its large size and dramatic changes in water levels. In the summer, the lake surface covers more than 4,000 km². Falling water levels during autumn expose extensive mudflats while isolated sub-lakes appear. These dramatic hydrological changes at Poyang Lake drive the ecological processes within the system and produce a wide range of habitats that support rich biodiversity. These seasonal changes in

① Categories of threat follow the latest IUCN Redlist (2010)

water levels create two, separate ecological phases of the wetlands at Poyang: one dominated by sub – tropical vegetation that is most productive during the hot summers, and another dominated by temperate vegetation whose primary growth period is during the cool winters. Different species make use of these separate ecological phases, resulting in near year – round productivity and a rich diversity of life.

Poyang receives water from five main tributaries that drain into the lake. Their combined catchments total 162, 225 km², almost the entire area of Jiangxi Province (Editorial Committee of Studies on Poyang Lake 1988). Poyang also has a seasonal, reverse – flow system from the Yangtze River which greatly contributes to the complexity of its yearly hydrological variation. Cycles of flood and drought mean that Poyang also varies dramatically from year to year.

While many people have studied the lake, its waters and its birds, the eleven – year monitoring program undertaken by Poyang Lake National Nature Reserve together with the International Crane Foundation has gathered the most comprehensive information about winter waterbirds and key variables of the wetland environment over a long period. This information is extremely valuable for understanding the relationship between the birds and the wetland. Because of the highly variable water conditions at Poyang within and among years, these data become increasingly important as each new year of data is added.

This book, co-sponsored by the Poyang Lake National Nature Reserve and the International Crane Foundation, describes this monitoring program in detail, and the data now available for study of wintering waterbirds, the aquatic plants many species feed upon, and the water conditions so critical to waterbirds, water plants, and the millions of people who depend on water and other resources of Poyang Lake. Because Poyang also has extraordinary economic importance to the people of Jiangxi Province, balancing ecological and economic values of Poyang Lake is a complex but essential task for maintaining the unique benefits to biodiversity and development provided by these wetlands. Data on waterbirds and their environments have growing significance as a basis for evaluating changes occurring at Poyang and making decisions that safeguard the diverse functions of the lake. We have prepared this book to assist managers, scientists, policy makers, media, and all other concerned people in making the wisest decisions possible for the future of Poyang Lake.

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