

# 宁夏鸟类

## 沙湖湿地

Wetland Birds in Sand Lake of Ningxia

杜天奎 编著



海洋出版社

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## 沙湖 —— 迁徙候鸟的生命绿洲 （代序）

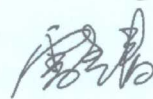
读罢杜天奎副教授编写的《宁夏沙湖湿地鸟类》，对沙湖的鸟类资源及其保护工作产生了浓厚的兴趣，对该书的作者产生了由衷的敬仰。从鸟类保护的角度来看，沙湖确是“养在深闺无人识”，而《宁夏沙湖湿地鸟类》一书正式揭开了其“迁徙候鸟的生命绿洲”美丽而动人的神秘面纱。

作者经过8年的不懈努力，长期开展野外调研，并通过沙湖自然保护区综合科学考察，获取了丰富详实的第一手资料和数据。书中介绍了在沙湖记录到的鸟类178种，分属17个目44个科101个属。其中有中华秋沙鸭、大鸨、金雕和白尾海雕4种珍稀濒危物种、国家一级保护鸟类，8种宁夏新纪录鸟类。沙湖鸟类种群超过5万只，满足了至少4项国际重要湿地的标准，以及东亚—澳大利西亚候鸟迁徙路线重要网络保护区的标准。

在此之前，我们在世界鸟类迁徙路线的地图上找不到沙湖，在中亚候鸟迁徙路线上也未见其名，在鸟盟国际出版发行的亚洲及中国重要鸟类分布区的名单里更是芳踪难觅。然而沙湖湿地资源丰富、鸟类众多，是中亚候鸟迁徙路线上部分鸟类的关键停歇地和能量补给区。迁徙期间，这些水鸟要依赖沿途的湿地休息和觅食，积聚充足的能量，完成下一阶段的旅程。因此，沙湖正是位于迁徙路线上一块具有这样重要意义的湿地，保护迁徙水鸟与其赖以生存的栖息地至关重要。

《宁夏沙湖湿地鸟类》图文并茂，内容丰富详实，以精美的照片与凝炼的文字，形象地向人们展示了宁夏沙湖湿地鸟类的区系组成与多样性特点，极大地丰富了宁夏动物区系的科学研究；真实地描绘了宁夏沙湖湿地丰富的鸟类资源、美丽的湿地景色、迷人的大漠风光，对科学研究、生物多样性保护和湿地自然保护区的管理极具参考价值，也可作为摄影爱好者和观鸟爱好者的分类鉴定工具书，本书也有益于学术界充分了解和认识宁夏以及西北的湿地鸟类资源。

沙湖是国家首批5A级景区，中国35个王牌景点和中国十大魅力休闲旅游湖泊之一。沙湖之美在于其绿洲之美，沙湖之美在于其家园之美，沙湖之美在于其生命之美。愿大家在享受沙湖之美的过程中，倾听、感受并思考沙湖鸟类的诉求，激发珍惜沙湖、保护湿地、关爱鸟类的热情。愿每一位社会成员从我做起、身体力行，把保护自然、尊重生命的行动带到生活的每一天，为子孙后代造福，实现可持续发展。



北京林业大学自然保护区学院院长  
国家湿地科学技术专家委员会副主任  
2012年3月10日于北京

## Sand Lake - Life Oasis of Migrant Birds

Having read the “Wetland Birds in Sand Lake of Ningxia” compiled by Professor Du Tiankui, I began to have the great interests in bird resources and their protection in Sand Lake and to have the heartfelt respect to the author. In view of birds protection, Sand Lake is indeed just like “a beauty shut away in the boudoir, rarely known by the public”. While the book “Wetland Birds in Sand Lake of Ningxia” has revealed to us the beauty and the mystery of this “life Oasis of the migrant birds”.

With 8-year unremitting efforts and long-term field investigation, the author has acquired rich, accurate and the first-hand information and data via the comprehensive scientific investigation in the Wetland Natural Preserve in Sand Lake. Introduced in the book, there are 178 species of birds, belonging to 17 orders, 44 families and 101 genera ever recorded in the Sand Lake, including 4 species of endangered and first-class protective birds, such as *Mergus squamatus*, *Otis tarda*, *Aquila chrysaetos* and *Haliaeetus albicilla*; 8 species of newly recorded birds. The bird population quantity of over fifty thousand in Sand Lake has met, at least, 4 important criterions for the important international wetlands, as well as the standards of important protection reserve network on East Asia-Australasian flyway.

Previously, we could not find the Sand Lake on the map of world bird flyways, neither on East Asia-Australasian and Central Asia flyways, let alone in the list of important bird distribution zones in China and Asia published by the Bird Life International Press. But, as a matter of fact, with the rich wetland resource and the numerous birds, Sand Lake is a key stage and refreshing place on the flyways for Central-Asia migrants. On the migration, the migrants depend on the wetlands on the flyways for rest and food, so as to get refreshed for the next staged flying. It is obvious that Sand Lake is a wetland that plays vital roles on the flyways of the migrants, and, therefore, the protection of the migrants and the protection of the wetlands indispensable for these migrants is of the same importance.

“Wetland Birds in Sand Lake of Ningxia”, with rich and accurate contents, beautiful photos and concise verbal expressions, vividly displays to us the characters of bird fauna and diversities in Sand Lake and greatly enriches the scientific researches of animal fauna in Ningxia. It also precisely pictures the rich bird resources in Sand Lake wetland, the beautiful wetland sceneries and attractive desert sights, which could not only be of valuable references for the scientific research, the protection of biodiversities and management of Natural Reserves, but also as the reference books for bird classification and identification by the shutterbugs and birdwatching lovers. Besides, the book could be helpful for academic circles to have the adequate acquaintance with the wetland bird resources in Ningxia and in the northwest as well.

Sand Lake was ranked as one of first-batch national 5-A class tourist resorts, one of 35 top scenic spots of China and one of the top ten most glamorous leisure tourist lakes as well. The beauty of Sand Lake rests with the beauty of the Oasis, with the beauty of its homeland and with the beauty of its vitality. I hope that, while enjoying the beauty of Sand Lake, we can listen to, perceive and think about the appeals of the birds, so as to waken our passion for cherishing Sand Lake, protecting the wetlands and loving birds. I also sincerely hope that every one of us could have the consciousness of responsibility and take the nature protection and the respect for life as a part of their life, so as to benefit the future generations and achieve the sustainable development.

*Lei Guangchun*

*Dean of Natural Reserve School of Beijing Forestry University  
Deputy Director of Sci-Tech Experts Commission for State Wetlands*



# 前言

鸟类是湿地生态系统的重要组成部分,灵敏和深刻地反映着湿地环境的变迁。鸟类和其他生物一样,不仅是人类主要的生物资源,也是生物多样性的主要组成部分,更是人类赖以生存的自然环境的重要组成部分。沙湖自然保护区地处黄土高原西北边缘,银川平原中部,西面有贺兰山将其与腾格里沙漠隔断。沙湖集沙漠与碧水为一体的独特的自然条件,各种地理成分在这里相互渗透、相互过度;岸边生长着湿生植被,水中有挺水植物、沉水植物。由于水源稳定,各种植物生长良好,覆盖面积较大,滩涂、沼泽、湖泊为底栖动物,为昆虫、鱼类以及作为顶级消费者的鸟类提供了丰富的食物资源、较好的繁殖栖息地、大面积的隐蔽场所。经过多年的建设与发展,沙湖已经形成了集荒漠、草原、湿地、沙漠于一体的生物多样性较丰富的典型的具有西北特点的相对稳定的湿地生态系统,是宁夏乃至西北地区主要的鸟类栖息地,也是候鸟南北迁徙的理想的重要中转、停歇地之一,对改善西部荒漠化生态环境有着重要的影响。沙湖同时也是中国 5A 级风景旅游区、中国王牌景点、中国十大魅力休闲旅游湖泊之一,每年旅游接待上百万人次,在人员高度密集流动的观光旅游地能保持现在如此好的生态环境,为国内旅游开发和自然资源及环境保护与发展的辩证关系研究、资源的可持续利用提供了研究场所,成为荒漠化区域内湿地生态系统保护中的样板和范本。出版这本书的主要目的是为了沙湖自然保护区的保护和旅游开发能可持续性利用并向更加良好的方向发展,为了让人们更好地了解沙湖的鸟类,同时也为了给观鸟、赏鸟、识鸟的人提供参考资料,经过 8 年的野外调研,作者获得了大量的实测数据,结合 2011 年对沙湖自然保护区的综合科考,认真总结前人经验,在此基础上完成了这本书的撰写。

该书的内容包括总论(沙湖自然环境概况、自然地理概况)、沙湖自然保护区生物多样性、沙湖自然保护区鸟类资源、沙湖观鸟四个部分。沙湖鸟类资源根据 2011 年沙湖科考结果,共记录鸟类 17 目 44 科 101 属 178 种,其中国家一级保护鸟类 4 种,宁夏新纪录鸟类 8 种。书中共使用照片 216 幅,其中 49 幅用于书内文字部位插图,鸟类外形特征描述等,剩余 167 幅用于沙湖观鸟。在 167 幅照片中展示了 123 种鸟类,有 60 幅对 123 种鸟类中的部分鸟类的雌雄、亚成体、生境、觅食地、巢、卵等也进行了特别地展示。对 123 种鸟类中的每幅鸟种照片都配有中文名、拉丁文学名、居留型和显著的形态特征,并对部分鸟种的食性、迁徙特点、习性等进行了简要的描述。

该书图文并茂,以丰富详实的调研照片和精炼的文字,向人们描述了宁夏沙湖湿地鸟类的区系组成、居留型及多样性特点等,丰富了宁夏动物区系的研究内容。真实的、系统的揭开了宁夏沙湖丰富的鸟类资源的“神秘面纱”,形象的展示出了“沙湖天使”——美丽的沙湖鸟类,为科学研究、生物多样性保护和湿地自然保护区的管理提供了参考,对摄影爱好者和观鸟爱好者也是很好的分类鉴定工具书,对于学术界充分了解和认识宁夏湿地鸟类以及西北湿地鸟类资源具有很高的参考价值。

在本书的编写过程中首先感谢科考小组的同事对我工作的支持和帮助,感谢沙湖湿地自然保护处、沙湖旅游公司等单位在资料收集等方面给予的大力协助,使得本书得以顺利完成。

参加本次野外调查和收集整理资料的还有荀光生、史红宁、韦宏、丁华、翟昊、李亚丽、夏晶、胡世杰、马兵国、杨艳梅、马金峰、张宁等,在此向他们表示衷心的感谢。

本书的编写得到亚洲开发银行资助。书稿完成后,承蒙北京林业大学自然保护区学院院长雷光春教授审定并为本书作序,在此深表谢意。

由于时间仓促,本人水平有限,错误和不当之处恳请读者批评指正。

编 者

2012 年 2 月 28 日



# Preface

Birds are an important component of the wetland ecosystem, vividly picturing changes of the wetland environments. Like other living organisms, birds are not only main biological resources and an important component of biodiversity, but also a vital component in the natural environments indispensable for the lives of human beings.

The Sand Lake Natural Reserve lies on the northwestern border of the Loess Plateau, the mid of Yinchuan Plain, with the Helan Mt. in the west, separating it from the Tenger Desert. The natural integration of the deserts with green water and the inter-infiltration and mutual transitions of varied geographical components form the unique natural condition of the Lake. Due to reliable source of water, the hygrophilous vegetation on the shore, emergent aquatic plants, submerged plants in the water and other plants grow well with large coverage, and the tidal flats, lakes and marshes provide rich food resources, sound breeding habitats and large shelters for zoobenthos, insects, various species of fish, as well as for the top consumers, birds. With many-year construction and development, nowadays, Sand Lake, with its typical feature for the integrating the wildness, desert, grassland and wetland, has already been built into a typical northwestern-styled, and relatively stable wetland ecosystem with rich biodiversities and it is a main bird habitat in Ningxia as well as in the northwest China and one of chief and ideal habitats and refreshing places of the migrant birds, which, in turn, offers important impacts on the improvement of the desertified ecological environment in the west. Sand Lake is also one of national Grade 5-A scenic & tourist resorts, a best scenic spots and one of the top ten leisure tourist lakes in China as well. The population of annual visitors to Sand Lake has reached over 1,000,000 person-times. It is almost unimaginable for any other tourism resorts with such high density mobility to maintain the perfect ecological environment. The Sand Lake provides a research place for the study of dialectic relations between the tourist developments and the protection and developments of the natural resources and environmental conditions, and the sustainable utilization of natural resources as well as a convincing model and example for the wetland ecosystem protection in the desertified areas.

The main objectives of this book are to ensure the protection of Sand Lake Nature Reserve, to achieve the sustainable utilization and further sound development of the tourism resources, to improve public awareness and knowledge of bird biodiversity in the Sand Lake, and to provide references for the people who have the interests in observing, appreciating and knowing the birds. This book is based on a large number of data acquired from eight-year field survey, the results from the comprehensive scientific study in the Sand Lake wetland in 2011 and the experiences of our predecessors,

This book consists of the following aspects: (i) General Information of the Sand Lake, (ii) Biodiversity in the Sand Lake Nature Reserve, (iii) Birds in the Sand Lake Nature Reserve, and (iv) Bird Watching in Sand Lake. According to the scientific survey results conducted in 2011, the bird resources could be classified into 17 orders, 44 families, 101 genera and 178 species, in which, 4 species belong to the 1st class protection species of the nation and 8 are newly recorded species in Ningxia. The book presents 216 photos of various birds, showing 123 species of birds in total. Sixty photos give the special introduction on the females and males, subadults, foraging places, nests and eggs, etc. of 123 bird species. The photos of each bird species are illustrated with its scientific names and its residing characters and morphological features in both Chinese and Latin languages, and also with the brief descriptions on the feeding habits, migrating characteristics and habits as well.


With the rich, full and accurate investigation photos and delicate verbal expressions, the book vividly displays the fauna composition and diversified characters and enriches the fauna researches in Ningxia. It also realistically shows the rich bird resources in Sand Lake wetland, the beautiful wetland scenery and the glamorous desert view. The book is able to provide reliable references for the scientific researches, the protection of biodiversities and the management of the wetland natural reserves. Meanwhile, the book can be served as an excellent reference book for bird classification and identification by the photography enthusiasts and bird lovers, which also has a high reference value for the academic circles to have the fully understanding and awareness of the wetland birds in Ningxia and wetland bird resources in the Northwest.

The editor thanks colleagues of the scientific investigation group for their support and assistance, to those of Wetland Nature Reserve Department of the Sand Lake Tourism Company, for their efficient support in the data collection. Without their generous supports and help, it would not be possible to have the book published. Special thanks also go to Gou Guangsheng, Shi Hongning, Wei Hong, Ding Hua, Ze Hao, Li Yali, Xiang Jing, Ma Bingguo, Yang Yanmei, Ma Jinfeng, Zhang Ning, Huang Rei, Dai Xiangxin, for their participation in the field survey and collecting and sorting the data.

The publication of the book is funded by Asian Development Bank. Prof. Lei Guangchun, Dean of Natural Reserve School of Beijing Forestry University provided his great appraisal and prelude of the book.

*Du Tiankui*  
*Feb. 28, 2012*



A photograph of a wetland landscape. In the foreground, there is a body of water with tall, brownish reeds or grasses growing along the edges. Several birds, likely egrets or herons, are visible. One bird is standing in the water, while others are in flight, their wings spread. The background shows a flat, grassy area leading up to a low, reddish-brown hill or dune under a clear sky.

**沙湖地理位置：**宁夏沙湖自然保护区位于宁夏回族自治区银川市北部 56 km，东北距平罗县县城 19 km 处，北距石嘴山市 26 km。地理坐标为：东经  $106^{\circ}19'6'' \sim 106^{\circ}24'10''$ ，北纬  $38^{\circ}45'17'' \sim 38^{\circ}49'42''$ ，海拔在 1 093 ~ 1 102 m 之间。四季稳定水面积 3 637  $\text{hm}^2$ ，包括天然湿地 1 837  $\text{hm}^2$  和人工湿地 1 800  $\text{hm}^2$ 。湖的南岸为流动沙丘，沙丘相对高度 15 ~ 20 m；湖的东面主要为盐碱洼地；西面、北面主要为农田耕地；保护区总面积 4 247.7  $\text{hm}^2$ ，东临“母亲河”黄河，西靠贺兰山自然保护区，是内陆干旱地区的典型湿地类型，也是温带草原向荒漠过渡的典型湿地生态系统。











**沙湖成因：**沙湖原名红渠洼，又称鱼湖，是河流古道型湖泊，也属于沙漠中的湖泊，是由黄河古河道洼地经过风蚀至地下水面，地下水溢出并汇集，再接受大气降水和地面水的补给便形成了湖泊。沙湖湖体外形受洼地形状的控制，呈不规则状，沙湖平均水深 2.2 m，最深处 4 ~ 6 m。由于湖泊周围地势相当低洼，地下水位埋藏很浅，故土壤盐渍化和浅育化较重。







# 自然保护区的

# 总论





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## 宁夏沙湖湿地鸟类

### NINGXIA SHAHU SHIDI NIAOLEI

沙湖自然保护区位于银川市北部，1997年1月27日经宁夏回族自治区人民政府同意建立宁夏沙湖自然保护区。沙湖自然保护区主要保护对象有荒漠化区域内典型湿地类型的生态系统区域；半荒漠化区域；荒漠化生态系统及自然综合体；干旱半荒漠区湖泊（水）、沙漠、野生动物、植物。保护区水系由黄河古河道洼地经过风蚀至地下水面，地下水溢出并汇集，在接受大气降水和地面水的补给形成的湿地，属黄河水系。保护区总面积4 247.7 hm<sup>2</sup>，其中湿地面积3 637 hm<sup>2</sup>。

沙湖自然保护区具有草甸、沼泽、滩涂、水域和沙漠等多种生态系统，分布有多种植被类型，既有大面积的沼泽湿地、农田，又有成片的怪柳，还有鱼、虾、螺、蛙、水生昆虫等多种小动物、浮游生物，为水禽和各种鸟类提供了安静、隐蔽、食物丰富的筑巢栖息、孵化繁殖场所，是宁夏典型的内陆干旱地区的典型荒漠和湿地结合类型，也是温带草原向荒漠过度的典型湿地生态系统，是荒漠化区域内典型湿地生态系统的天然“本地”和生物资源“储源地”，也是濒危、珍贵、稀有水禽类的“中转站”，代表着温带草原向荒漠过度的典型湿地生态系统的自然特征。





## 1.1 自然地理概况

宁夏沙湖自然保护区位于宁夏回族自治区石嘴山市平罗县西南部,东北距平罗县县城 19 km,南距银川市市区 56 km,北距石嘴山市 26 km。地理坐标为:东经  $106^{\circ}19'6'' \sim 106^{\circ}24'10''$ ,北纬  $38^{\circ}45'17'' \sim 38^{\circ}49'42''$ ,海拔在 1093 ~ 1102 m 之间,东西长约 6 km,南北宽约 7 km。保护区西界距包兰铁路 0.7 km,东南部距 109 国道 8 km,距京藏高速公路 1 km。保护区总面积 4247.7  $\text{hm}^2$ 。



### 1.1.1 湿地

沙湖自然保护区的湿地面积 3637  $\text{hm}^2$ ,以天然湖泊和沼泽湿地,以及鱼塘和水渠等人工湿地组成。现有的鱼塘大部分是 2006 年以来开发的,总面积达 1800  $\text{hm}^2$ 。这些湿地在保护区生态系统和维持生物多样性等方面具有举足轻重的作用。

## 1.2 地质概况

### 1.2.1 地层

沙湖自然保护区处于鄂尔多斯西缘拗陷带(二级构造单元),属地质构造上被称为“银川地堑”的银川盆地。

自然保护区及其周边出露地层自老而新有太古界、元古界、古生界的寒武系、奥陶系、泥盆系、石炭系、二叠系,中生界的三叠系、侏罗系、白垩系及新生界的古近系、新近系、第四系。盆地基底地层由古生界和前古生界组成。地表第四系分布广泛。据钻孔资料新生界沉积厚度约 7000 m,沉降速度为每年 0.1 ~ 0.17 mm,其中第四系最大沉积厚度达 1600 m 以上,沉积物以冲积、冲湖积、洪积为主,另外还有冲洪积物、风积物、湖沼沉积物。洪积



图 1-1 白骨顶 *Fulica atra* 生境