惠州蜻蜓

Huizhou Dragonflies

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本书由作者和广东南昆山省级自然保护区合作完成

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HUIZHOU DRAGONFLIES

惠州蜻蜓

注：这里所说的"稀有"是指在惠州城区只有1－2处分布点，"少见"是指有3－10处分布点，"常见"是指有11－100处分布点，"广泛分布"是指有100处以上分布点，"飞行期"和"体长"参以惠州城区的调查为依据。（稀有程度参照非教授Wilson先生所定标准。）

The status of species is ranked as "Rare", "Uncommon", "Common" and "Widespread".

"Rare": the species is only recorded from 1-2 sites;

"Uncommon": the species is recorded from 3-10 sites;

"Common": the species is recorded from 11-100 sites;

"Widespread": the species is recorded from over 100 sites.

PS: The standard of "rare" is following Mr. Wilson's standard.

序 Preface

虽然直至今日，蜻蜓仍然仅被少数昆虫学家所研究，但在这个新的世纪，全世界的自然爱好者正给予它们更多的关注。许多爱好者，像鸟类爱好者观察和拍摄鸟类那样，可以通过观察和拍摄蜻蜓获得许多乐趣。在许多国家大量，的蜻蜓书籍正纷纷发行，这使我们可以鉴别和了解该地区的蜻蜓多样性。

吴宏道的这本书则是中国大陆首本此类图鉴。以中英双语编辑的文字部分相对较少，但是超级精美的彩色图片为中国华南地区的蜻蜓提供了完美的介绍。虽然惠州市面积仅占广东省面积的6%，全中国的0.11%，但是这一地区却记录了至少174种蜻蜓，大约为全广东省蜻蜓总数的70%，全中国的1/4。主要原因是惠州地区拥有许多自然保护区。其中最著名的有南昆山自然保护区，该保护区蜻蜓物种极为丰富，而且该地区的蜻蜓调查也较深入。除了保护区，惠州地区还有许多合适的低地和山区湿地栖境。

中国第一本附有蜻蜓图片的书籍是1798年Edward Donovan在英国伦敦发表的著名的*An Epitome of the Natural History of the Insects of China*。在全书的50个手绘彩色铜版纸图版中有2个图版绘制了6种蜻蜓。这些种类，包括美丽的华艳色蟌，第一个记录于中国和亚洲地区的蜻蜓，全部可以在吴宏道的图鉴中找到。尽管从Donovan时期至今，世界已经发生了许多改变，但昆虫的美丽和多样仍然持续地吸引着我们，展示它们美丽的书籍也不断地发表。我感到十分荣幸能为这本图鉴写序言，我个人也十分高兴，因为我曾短暂地访问了南昆山和罗浮山，并亲眼目睹了作者在野外为本书拍摄非常精美的照片。

马蒂．赫默莱宁
赫尔辛基大学，芬兰
Matti Hämäläinen
University of Helsinki, Finland

Until relatively recent times, dragonflies were studied by only a few entomologists, but in this new century they are receiving ever increasing attention from nature lovers all over the world. Many now derive great pleasure from the hobby of observing and photographing dragonflies, in the way they have long watched and photographed birds. Numerous new books introducing dragonflies, enabling their identification and reporting their regional or local diversity are being published in many countries.

The present book by Wu Hongdao is among the first of its kind from the mainland of China. The bilingual text is limited, but the superb colour photos provide an excellent introduction to the diverse and colourful world of south Chinese dragonflies. Although, the area of Huizhou City covers only 6 % of the land area of Guangdong province and a tiny 0.11 % of the whole of China, this area is home to at least 174 species of dragonflies - about 70 % of species known from Guangdong and one quarter of the total Chinese dragonfly fauna. This is mainly because the area of Huizhou City includes several well preserved protected areas. The most famous is Nankunshan provicial reserve, which is especially rich in dragonfly species and has been particularly well studied. Within Huizhou City there are also suitable wetland habitats outside protected areas, in both lowlands and mountains.

The first book illustrating Chinese dragonflies was Edward Donovan's famous classic *An Epitome of the Natural History of the Insects of China*, published in London in 1798. Two of its 50 fine hand-coloured copper-engraved plates illustrate six dragonfly species. All of these, including the beautiful Neurobasis chinensis, the first dragonfly from China and the whole of Asia to be scientifically named, are also to be found in Wu's book. Since the time of Donovan the world has changed in many ways. However, the beauty and diversity of insects continues to fascinate us, and books showcasing their splendour are still being published. I feel privileged to have been invited to write these few lines introducing this fine book. The pleasure is especially personal, as, during joint brief visits in Nankunshan and Luofushan parks, I have witnessed with my own eyes the author taking some of the photographs which are here reproduced so splendidly.

前言 Foreword

惠州市（东经113° 51′ ～ 115° 28′，北纬22° 24′ ～ 23° 57′）位于广东省东南部，总面积11370km^2，属南亚热带季风气候区，年平均气温22℃，年降水量1700 ～ 2300mm。惠州市山地丘陵面积大，森林植被良好，森林覆盖率达59.8 %。建有国家级、省级、市级和县（区）级森林与野生动植物类型自然保护区26个，建有森林公园36个。自然保护区和森林公园总面积达114800hm^2，占惠州市国土总面积的10.1 %。这些保护区和森林公园为野生动物包括蜻蜓提供了极为重要的繁衍场所。

蜻蜓是指蜻蜓目（Odonata）所有种类，蜻蜓目在分类学上隶属于节肢动物门昆虫纲，有3个亚目：均翅亚目（Zygoptera）、间翅亚目(Anisozygoptera)和差翅亚目(Anisoptera)。目前全世界已有超过5800种蜻蜓，中国有600余种。在惠州市有许多非常适宜蜻蜓繁衍的栖息地，例如南昆山、汝湖镇大良村、罗浮山和象头山等。作者经过12年的野外考察，共记录了惠州地区蜻蜓目2个亚目17科97属共174种（含亚种）蜻蜓，它们的美丽身影都可以在本书中找到，包括闻名世界的蝴蝶裂唇蜓（*Chlorogomphus papilio*）、赤基色蟌（*Archineura incarnata*），以及许多鲜为人知的稀有品种。希望通过本书使热爱蜻蜓的朋友，无论是专业人员还是普通爱好者，更加了解惠州地区的蜻蜓，并促使更多感兴趣的人去认识这些大自然水边的精灵。



Situated in the southeast of Guangdong Province, Huizhou (113° 51′ ~115° 28′ east longitude and 22° 24′ ~23° 57′ north latitude) belongs to the southern subtropics monsoon climate zone, covering an area of 11,370 square kilometers. It' s annual average temperature is 22℃ and the rainfall here averages 1700~2300mm a year. With a large area of hills, mountains and good forest vegetation (forest coverage rate reaching 59.8%), Huizhou has 26 nature reserves for forests, wild plants and animals, which are at the national, provincial, municipal, district and county levels. It also has 36 forest parks. The reserves and the forest parks cover a total area of 114,800 hectares or 10.1% of the total land area of Huizhou, providing very important breeding sites for wild animals which include dragonflies.

Including 3 suborders —Zygoptera, Anisozygoptera and Anisoptera, dragonflies refer to all the insects of order Odonata which subjects to Insecta, Arthropoda. So far there are over 5,800 species known all over the world, and a total of over 600 species have been found in China. There are a lot of habitats appropriate for dragonflies to breed in Huizhou, like Mt. Nankunshan, Daliangcun Village in Ruhu Town, Mt. Luofushan and Mt. Xiangtoushan. After 12 years of the field surveys, the author has recorded 174 species (including subspecies) in 97 genus, 17 families and 2 suborders in Huizhou, all their beautiful pictures can be found in this book, including the world-famous species *Chlorogomphus papilio* and *Archineura incarnata*, as well as many other little known species. Through this book, we hope dragonflies lovers, fans as well as experts, can have a better understanding of dragonflies in Huizhou. And we also hope that this book can get more people who are interested in dragonflies know more about these water sprites.

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蜻蜓重要栖息地

——广东南昆山省级自然保护区

The important habitat of dragonflies

-The Nankunshan Provincial Nature Reserve

广东南昆山省级自然保护区于1984年经广东省人民政府批准建立，管护面积1887公顷，属“森林生态系统类型”自然保护区，位于广东省中南部的龙门县境内。

保护区森林覆盖率达98.8%，平均海拔600m以上，主峰天堂顶海拔1210m，主要保护对象为南亚热带常绿阔叶林森林生态系统及有特殊保护价值的野生动植物及其栖息地。区内森林莽莽，溪水潺潺，生态环境十分优美，为野生动植物提供了理想的栖息地。据调查，区内有高等植物2500余种，其中中国特有种7种；有野生动物4纲29目76科269种，其中国家一、二级重点保护野生动物32种。特别值得提出的是，南昆山的蜻蜓种类极为丰富，共有153种，占全国已知蜻蜓种类的近1/4，是广东省乃至全国的蜻蜓重要栖息地，每年都有许多国内外蜻蜓专家和爱好者到此考察。南昆山黑额蜓模式标本就采自南昆山。

保护区内环境幽静，空气清新，气候宜人，据测定：森林中空气负离子平均含量为4134个/cm^3以上，是全国森林中负离子含量最高的地区之一；空气中的细菌含量为115～178个/m^3，是广州火车站28600个/m^3（2003年监测数据）的0.5%；水质均达到Ⅰ类饮用水的标准；在炎热的夏天，平均气温比广州、东莞、惠州等地低5～7℃，是人们理想的天然避暑胜地和森林旅游目的地。

The Nankunshan Provincial Nature Reserve was established in 1984 by the Guangdong Provincial People's Government. The protected area of 1887 hectares, is a reserve of the 'forest ecological system' type . The reserve is located in the Longmen County, south central Guangdong Province.

The percentage of forest cover in Nankunshan Reserve is over 98.8%, and the average altitude is over 600 meters. The peak of the mountain, which called 'Tiantangding' , is 1210 meters in height. The aim of the reserve is to protect the forest ecosystem of south Asian tropical evergreen broad-leaf forest as well as the rare animals, plants and specialized habitats found within the forest. With luxuriant vegetation, murmurous streams and beautiful biological environment, the reserve provides an ideal habitat for wild animals and plants, including insects. There is a record of over 2500 species of higher plants, 7 of them endemic to China; It is also known to be home to a total of 269 vertebrates in 4 classes, 29 orders and 76 families, including 32 species listed in the first and second nationally protected animal list of China. The reserve is especially rich in dragonflies. A total of 153 species have been recored which occupies nearly a quarter of the known species in China. Therefore the Reserve has become the important habitat of dragonflies in Guangdong and even in China. Every year, plenty of domestic and oversea, experts and lovers of dragonflies come here to make their observations. The holotype of the rare *Planaeschna nankunshanensis* Zhang, Yeh & Tong, 2010 was also collected in the protected area.

In the reserve, the environment is extremely pleasant, the air is very clean and the climate is very congenial. The average level of negative air ionization reaches 4134 per cm^3 in the forest, which is among the highest in China. The bacterial concentration of the air is only 115-178 per cm^3, only 0.5% of the 28600 per cm^3 found in the Guangzhou Railway Station. The freshwater in the streams has reached level I standard of drinking water. In the hot summer, the average temperature in the reserve is usually 5-7 ℃ lower than in urban Guangzhou, Dongguan and Huizhou cities. It is therefore a most delightful and salubrious place to visit during the hot summer.

蜻蜓的眼睛

Compound eyes of dragonflies

蜻蜓的眼睛晶莹剔透，犹如一颗颗璀璨、圆润的宝石，湛蓝、翠绿、墨绿、鲜红、金黄……色彩多样，熠熠生辉，是蜻蜓最具魅力之所在。

The compound eyes of dragonflies are glittering and translucent, like gorgeous jewels. They may be brilliant blue, emerald green, greenish black, bright red or golden yellow – the colour varies from species to species. The eyes are perhaps the most attractive feature of dragonflies.

蝴蝶裂唇蜓羽化

Emergence

蜻蜓为半变态昆虫，一生经历卵、稚虫和成虫三个阶段。稚虫生活在水里，成熟后就会离开水体羽化为成虫。这是蝴蝶裂唇蜓羽化过程。

Dragonflies are hemimetabolous insects and pass through the three life stages of egg, larva and adult. The larvae, breeding in freshwater habitat, leave the water when they become mature and emerge. This is the process of the emergence of the magnificent *Chlorogomphus papilio*.