

Resource Insects of China

By Chen Xiaoming, Feng Ying. Science Press, Beijing, China, 2009. 281 pages, Price: 56.00 CNY

Insects belong to the Insecta in the Arthropoda and are an ancient biological taxa. The earliest fossil of insects are found in the Late Paleozoic of the Devonian, about 3.5-4 million years ago. The survival and development of insects began about 3.4 billion years earlier than that of humans on earth. According to the report of the Department of insects of the British Natural History Museum, presently, there are more than 10 million insect species in the world, in which about 0.9-1.3 million insect species have been described. Furthermore, the number of insects increases at an average rate of 7000 species per year. In the long evolutionary process, insects have developed some prominent biological characteristics, such as short generation period, rapid reproduction rate, high adaptability, high food conversion rate and so on. It is estimated that the total biomass of insects is more than that of all the other animals on earth. The number of species of insects accounts for about half of all living organisms on earth, and accounts for more than 80% of all animals, being the largest component, not only of the animal kingdom, but of all life on the earth. Insects are the most widely distributed animals in the world, being able to live in almost every corner of the earth.

Many insect species on the one hand can damage crops and decrease agricultural production, but on the other hand are useful to humans. Resource insects refer to the insect products (secretions, inclusions and excreta, etc.) or insect behavior or insect body itself have special values or can be directly or indirectly used as resources by humans, due to their special values of use either in the economy or in science and environment. Resource insects include the industrial-raw-material insects, silk-production insect, honey-production insects, worm-tea-production insect, medicinal insects, edible insect (food or feed insects), pollination insects, ornamental insects or cultural insects, environmental friendly insects, insect as natural enemies of pest and so on. The resource insects can be applied in many fields, such as chemical industry, national defence industry, electronics, clothing, food, medicine, agriculture, forestry, environmental protection and national culture and so on. Many insects are rich in protein, fats, carbohydrates, free amino acids, vitamin, carotene, inorganic substances such as various salts, potassium, sodium, phosphorus, iron, calcium and some active substances with medicinal values that human body needs, thus, there is high values of exploitation and use. The insect world is a vast reservoir of resources, and is an important renewable biological resources. Insect resources are the last piece of cake that the God left us. However, how to efficiently and sustainably use these still needs detailed exploration.

China is the only country across two geographical regions of animals in the world, and the one with the largest number of insect species, and longest history of use of insect resources, in the world. Therefore, recognition, exploitation and use of insect resources is of particular importance in China, and needs in-depth research. The number of insect species in China is about 1/10 of total number of species of insects in the world with, more than 30 000 recorded. There are 145 species of medicinal insects in China according to the Chinese medicinal animal records. Since insects contain a variety of active substances, they have been used as high value of traditional Chinese medicine resources for a long history. The famous *Compendium of Materia Medica* in the Ming Dynasty and the modern Chinese medicine books record 11 orders, 34 families, 54 genus, and about 170 species of medicinal insects, including the poisonous insects. Chinese ancestors used silkworm for more than 5000 years. The history of bee-keeping in China is more than 3000 years. The records on Chinese gall can be traced back 2000 years ago in the ancient book *Shanhai Jing*. The history of the use of wax worms is more than 1700 years. Wax insects have been nurtured and utilized by Chinese about 1000 years. Use of a natural enemy to control a pest in China dates to 340 A.D. More than 400 ornamental insect species have long been used in China.

Although China has a long history of use of resource insects in the world, knowledge about them has not been systematically summarised and new research on this field remained inadequate for a long time. To some extent, this has limited fast and efficient development of this field in China. Luckily, the newly published book *Resource Insects of China* is a new landmark that meets the demands of vast numbers of Chinese people who are interested in resource insects by filling the gap in this field in China. Besides that, it is a good introduction to Chinese resource insects for the outside world.

Many researchers have carried out study on lac insect, wax worms, gallic aphids, cochineal, edible insects, medicinal insects, ornamental insects, insects as natural enemies of pests, pollination insects, and the insect cell engineering and so on, since 1950s. The abundant research data on which the authors based this monograph combines the latest achievements of domestic and foreign research in this field with their own research results. The book systematically elucidates the main characteristics, scientific values, and application values of the resource insects of China.

The book is divided into 16 chapters, including introduction, lac insects, wax worms, gallic aphids,

cochineal, silk insects, honey insects, medicinal insects, insects as protein resource, insects as natural enemies of pests, pollination insects, ornamental insects, environmental friendly insects, scientific value and application of insect cells, bio-reactor of insects, special abilities and bionic insects and so on. Each chapter introduces a large number of examples of specific types of insects and their biological and ecological characteristics, application values, research status at present, and the developmental trends, based on domestic and foreign research data or references. Both pictures and text are good enough. The book is a systematic monograph on the insect resources of China, especially the latest information on the resource entomological research.

Mammals of India

By Vivek Menon. 2009. Princeton University Press, 41 William Street, Princeton, New Jersey. 208 pages, 35.00 USD Paper.

The Book of Indian Mammals by Prater [The Bombay Natural History Society] is, despite updates, a 60-year-old book. The information is still valid, but the style is antiquated. The illustrations, by Paul Barrel, are excellent. However it is long past time for a new book. Vivek Menon's contribution is, therefore, most welcome.

The author provides full coverage [though not necessarily with an illustration] of just over 250 species of India's 400 or so mammal species. Some less frequently seen species get partial coverage, often as part of a comparison table.

There is an introduction to each family followed by a species account for most of the mammals you could see without going to unusual lengths [such as setting traps]. Each account covers a description, notes on behaviour, size and habitat. He gives the various local names too. The author also adds the places where you are most likely see the animal. Names are given in English and several Indian languages. The tiny range map shows its current distribution. A text box gives a quick reference to essential data [Scientific name, status, an estimate of the current population, diet, social unit, the time it is active and where you might find it]. All the species covered are illustrated by photographs, except the cetaceans. Key characteristics are highlighted by lines and appropriate text. There is a broader coverage than Prater's book, with more small mammals [mice, bats shrews etc.] included. The author does not cover sub-species.

The visitor to India will find this a very useful book for all the larger mammals. You will be able to identify similar species like Bonnet and Rhesus Macaque. You will have no difficulty identifying the common Sambar deer from the scarce Swamp deer. Small mammals,

This book will provide a valuable reference or teaching material for those engaged in teaching, technical or research work in entomology, agriculture, forestry, ecology, biology, environmental sciences and so on, or other persons who are interested in these fields.

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like mice and rats, will be more difficult, but that is not the fault of the book. For example, you should be able to separate and identify the striped squirrels. However I was not able to finalise the identity of a [*Rhinolophus*] horseshoe bat I photographed last year.

It is the larger, diurnal species that most people will see. The Gaur, for example, has a clear photo that shows its size, chocolate brown body and characteristic white "socks." The text tells you there are 20 000 left in a declining population and it is most easily seen at Mudumalai and Bandipur National Parks. The following entry for Yak notes there are less than 100 wild Yaks left in the Chang Chen Mo valley in Ladakh [10 000 in the world, compared to 14 million domestic Yaks].

Most people will focus on seeing a Tiger – a really magnificent beast. The national parks system is well organized to find a Tiger for visitors to see. The book recommends Rathambhor and Bandhavgarh parks, both excellent choices. Oddly, there are five times as many Leopards as Tigers, but the former are more difficult to see. Most of the other cats are confined to discrete portions of the Himalayas.

This is an excellent and much needed modern guide. It might not be detailed enough for a serious researcher, but it is great for the visitor. It is easy to use, with a lot of quality information packed into a book that only measures 21.5 × 14 × 1 cm. The only "negative" comment I can make is that so many of the population figures are followed by "declining." In the conservation note, habitat loss and poaching are the dominant factors. It is sad to think that the beautiful, fascinating animals in this book could disappear from India's wonderful heritage. Buy the book and visit India soon.

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Erratum The Canadian Field-Naturalist 126(4)

In response to the review of *Contributions to the History of Herpetology*. CFN 126(3): 344-345, the book's editor Kraig Adler pointed out (personal communication to FRC 12 May 2013): "Only one small correction. Mrs. Martof used a kitchen knife, not a gun. She told the police she slipped while cutting some pizza. But Bernie was stabbed up under his rib cage several times!"

Erratum The Canadian Field-Naturalist

It has come to our attention that sections of many of the book reviews by Li Dezhi and Qin Aili were copied from sources without attribution. The journal and the authors apologize for this oversight.