General Insects

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Chapter 5

General Insects

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Summary

During the 2005 RAP survey in Ganzi Prefecture, Sichuan Province, China, we recorded 170 species of insects, belonging to 121 genera, 42 families, and 11 orders. Of these, 136 species were recorded from Kangding County, 36 species from Danba County, and 21 species from Yajiang County. Ten new species recorded during this survey are potentially new to science and will be described in future publications. Specimens of *Hepialus* sp., the host caterpillar for a fungus that is highly sought after and collected, were not observed during the RAP survey, although the species is known to be distributed in Ganzi Prefecture.

Introduction

A RAP survey of the insect fauna of Ganzi Prefecture of Sichuan Province was conducted by five experts who studied primarily Formicidae (Hymenoptera), Silphidae (Coleoptera) and Orthoptera. This chapter focuses on collections of other Orders of Insecta. The species discussed in this chapter were identified according to specimens collected from Kangding, Danba and Yajiang counties. Geographically, Ganzi Prefecture is a part of the greater Hengduan Mountains. Chen (1992) reports the species of Insecta known from the Hengduan Mountain Region.

Methods

This RAP survey utilized three methods, net-catching, lamp-luring and searching, described below.

Net-catching method. Insect nets (aerial nets) are an important collecting tool, most useful when swarms of insects are present. The net should be lightweight, made of soft, durable material like nylon yarn. The net-catching method was used during this survey to collect flying insects, leafhoppers, grasshoppers, dragonflies, sawflies and butterflies.

Lamp-luring method (Light traps). Light traps are the most common method of collecting nocturnal specimens. Many insects are strongly attracted to light at night, and collecting beside house lamps is excellent on warm evenings. We used a simple light trap, consisting of a suspended white sheet with a long wire in front of it. Insect groups obtained by this method consisted mainly of species not collected during daytime. Large numbers of insects and many species can be caught at night using this method, such as beetles and stone moths.

Searching method. A number of insects, such as carabid beetles and earwigs, were found under stones, plant leaves, remains, excrement and urine. The searching method was used to collect hiding or resting insects, such as Dermaptera, during the day.

Insect specimen identification was completed by more than 10 Chinese experts using many taxonomic references for China (Cai and He 1995, Cai and Shen 1999, Cai and Huang 1999, Canepari 1997, Chou 1998, Zhou Yao (Chou Io), Lu Jinsheng, Huang Ju, and Wang Sizheng 1985, Chen 1992, Chen and Ma 2004, Delong 1948, Dieke 1947, Benson 1920, Hsiao 1977, Huang 1992, Kuoh 1966, Kuoh 1986, Li and Wang 1991, Li and Kuoh 1993, Li 1993, Li and Wang 1996, Malaise 1945, Matsumura 1912, Ren and Yu 1999, Schmid 1956, Schmid 1965, Sui and Sun 1984,

Ulmer 1935, Viraktamath 1979, Wei and Nie 1988, Wu 2001, Young 1986, Yuan and Chou 2002).

Results

We collected and recorded 170 species of 121 genera, 42 families, and 11 orders from Kangding, Danba and Yajiang counties. Of these, 136 species were recorded from Kangding, 36 species from Danba, and 21 species from Yajiang. The complete list of results is presented in Appendix 3. Ten new species recorded during this survey are potentially new to science and will be described in future publications.

Discussion

Basic characteristics of the insect fauna

Species of Coleoptera, Lepidoptera (Butterflies) and Hemiptera were comparatively more numerous than species of other orders, respectively about 24%, 23.5% and 24% of total collected species (Table 5.1). Combined, these three orders were represented by 122 species of 87 genera belonging to 24 families. The species of the orders Trichoptera and Hymenoptera were less rich, representing about 7% and 6% of species recorded, respectively.

Table 5.1. The primary groups of Insecta collected from Ganzi Prefecture.

Order	Families	Genera	Species	Proportion of total species collected (%)
Coleoptera	6	27	41	24
Lepidoptera (Butterflies)	6	31	40	23.5
Hemiptera	12	29	41	24
Trichoptera	7	10	12	7
Hymenoptera	1	3	10	6
Total	**32**	**100**	**144**	**84.7**

The highest species richness recorded during this RAP survey was found at Kangding (Table 5.2). In the Kangding valley, considerably lower in elevation and is warmer than the other sites, 136 species of 104 genera were recorded. The butterflies collected here include 37 species of 30 genera and 6 families, while species records of some other orders were more numerous.

As it rained frequently during the survey of Danba County, few specimens were collected here. Species collected here, including stone moths and sawflies suggest that the circumstance here is more primitive, and that the area is recovering well from previous disturbance, with little evidence of pollution.

The Yajiang County site was highest in elevation of the three sites. It is less rich in species of Insecta than the other sites, but comparatively rich in endemic species, including some brachypterous and apterous species, for example, *Meloe autumnalis* Oliver, and *Eokingdonella* sp.

Table 5.2. Comparison of the number of species and genera among the three China RAP survey sites.

	Kangding	Danba	Yajiang
Species	136	36	21
Genera	104	23	18
The species/known species collected from Ganzi Prefecture	80%	21%	12%

Important species

(1) *Hepialus* sp.

This caterpillar is the host for a fungus that is highly sought after and collected by local people. Specimens of the species were not collected during the RAP survey, but it is known to be distributed in Ganzi Prefecture (Kangding, Danba and Yajiang County). The species is an important resource insect as many local people take part in the activity of searching for and collecting the catepillar fungus. However, over-collection threatens this species. If collection is not strictly monitored, the species will likely be extinct in a few decades.

(2) *Schlechtendalia chinensis* (Bell)

Schlechtendalia chinensis is found in Kangding County. The species is a gall parasite on Rhus chinensis and is called the Chinese gall. It is a famous traditional Chinese medicine and important industrial material. The plant is distributed in low altitude areas.

(3) *Rare and precious* insects

Rare and precious insects include primarily butterflies and some beetles. Butterflies are comparatively rich in Kangding, Danba and Yajiang, especially Kangding. They fly everywhere in the daytime sunshine. Most species belong to Papilionidae, Nymphalidae, Satyridae and Nymphalidae. Other rare and precious insects have great value to collectors including some beetles and species of Neuroptera, among others.

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