

## Abstract

Identification and utilization of insects in farming area in the 3 provinces of the Upper South of Thailand was aimed to 1) survey and collect insect specimens in organic and chemical agricultural areas of Surat Thani, Chumporn and Ranong Provinces, 2) classify the collected specimens, 3) find out the local knowledges of utilizing useful insects, 4) teach these knowledges to local farmers and primary school students. The work was carried out in 3 stages. The first stage was the survey and collection of insect specimens in 5 randomly selected agricultural areas for both organic and chemical types in the 3 provinces. The specimens were classified with the use of taxonomic key to the order level. The specimens were then compared with the collections in the insect museums and the result confirmed by experts. The collected specimens were then grouped into useful and harmful types. The second stage was carried out through interviews of the local people on the utilization of useful insects together with learning the way of insect rearing by the local people. The third stage was transferring the knowledge of this study to 2 different groups of people with different objectives. For the first group, a training course for 33 farmers and interested people was arranged in accordance with their interests. An electronic book was prepared to supplement the teaching student at elementary level for 15 teachers.

It was found that

1. There were 12 orders, 73 families, 138 genus and 175 species of insects in the studied areas with order Lepidoptera having the highest number of 47 species while only one species each in the order Dermaptera, Neuroptera and Phasmida were found. Of all 175 species, 140 were useful insects that have important roles in controlling other harmful insects, can be used as food for humans and animals, help in pollination, and act as a fertility index for the environment. There were 123 species of harmful insects which mostly are pest and those that caused health problems in humans and animals.

2. The interviews of local people revealed that there were 3 types of insect utilization which are 1) rearing for sale and as food source such as *Rhynchophorus* sp.,

*Tenebrio molitor*, *Apis* sp., *Tetragonula pegdeni*, *Gryllus bimaculata*, 2) collecting as food from the wild such as *Rhynchophorus ferrugineus*, *Dundubia intermerata*, *Achaea janata*, 3) rearing or moving the insects' hives to help increase agricultural productivity such as *Oecophylla smaragdina*, *Vespa affinis*. Since the local people did not have knowledge on many local insects whether they are useful or harmful, it became very important to educate them on the subject of local insects and their utilization.

3. A training set on utilization of local insects by local farmers in Surat Thani was prepared according to the result of discussion of a focus group consisting of representatives of farmers and those involved. The training set consists knowledge on 1) local insects, 2) pest control through biological methods, 3) pest control by using trap, 4) rearing of stingless bees (*Tetragonula* sp.), 5) rearing of *Tenebrio molitor*. This training set was used in training of 33 farmers and interested people. Comparing the knowledge test result of all trainees before and after training, it was found that all trainees had gained better understanding significantly after the training at 0.05 confident level. This was an indication that the training set was effective in help increasing the knowledge, understanding and skills on the utilization of local insects.

4. The electronic books on "Insects: Local Natural resources" contained 1) Insects and the order of insect, 2) Physiology of insects, 3) the importance of local insects, 4) Local insects, 5) Utilization of insects by local people. This book was evaluated for its appropriateness and conformity by experts. Fifteen science teachers had been asked to use this book in supplementing their teaching. In overall, the teachers evaluated this book as highly appropriate.

Keywords: Insect classification, insect utilization, agricultural area, training set, electronic book