

Insecting

Kenichi NONAKA (Rikkyo University, Tokyo, Japan)

Introduction

In the inland waters of Southeast Asia, insects that inhabit aquatic areas (aquatic insects) are caught and used in addition to aquatic resources such as fish, prawns, and crabs (Mitsuhashi, 2009). They are eaten in a broad variety of ways, providing a rich and varied diet for the people that live there. Their market values are also relatively high (Nonaka, 2005).

This study aims to show that insects constitute a significant aquatic resource in the countries of Southeast Asia (including Japan), clarifying the species that are used, the ways in which they are caught and cooked, and their market values. The author presents data collected through fieldwork in Japan and Southeast Asian regions such as Thailand, Laos, Vietnam, Cambodia, and Yunnan province in China.

Edible aquatic insect species and their uses

1) Species

Insect species eaten in Southeast Asia include the larva and imago of Coleoptera such as diving beetles and water scavengers, the imago of Hemiptera such as giant water bugs (*Lathocerus* spp.), water scorpions (*Laccotrephes* spp.), water mantis (*Ranatra*.spp), and ferocious water bugs (*Diplonychus*. sp), and the larva of Odonata such as dragonflies. In Japan, relatives of the caddisfly (Trichoptera) and stonefly (Plecoptera) are also eaten.

In Southeast Asia, there are regional differences in whether or not insects are used for food, and which species are eaten. The author has never encountered insect eating during field work in Indonesia, Malaysia, or the Philippines.

In Thailand, insects are mostly eaten in the northeast, although giant water bugs are also eaten in other regions. In Laos, insects are often eaten in the flatland areas, and less so in the mountainous regions of the north. In Vietnam, they are eaten in the rural northern valleys, and it was found that giant water bugs are eaten in the capital, Hanoi. In Cambodia, insects are eaten in the area around Tonle Sap Lake and Siem Reap.

2) Gathering

Insects are gathered in three ways: a) gathering specific insects, b) catching insects together with fish (by-catches), and c) using similar methods to land-based insect gathering. Giant water bug and dragonfly larvae, and caddis flies and stoneflies in particular are sought using method a).

In terms of actual tools and techniques, insects are caught by hand or using nets (scrape nets, four-armed scoop nets), basket traps, or insect-attracting lights, and each is used differently according to the insects' habitat. When aquatic insects are in season, they are caught in water-filled paddy fields, streams, pools, and partially-drained ponds.

In net fishing, insects are caught together with fish and shellfish species (fry, prawns, frogs, etc.). Insect-attracting lights (ultraviolet lamps) are used in Thailand. Although the lamps draw a variety of insects that are attracted to light, they are set up in paddy fields close to the surface of the water in order to attract giant water bugs. In Japan, caddis flies and stoneflies are caught in rivers (currently only around Tenryu river in Ina city, Nagano prefecture).

3) Cooking

Giant water bugs are popular in each region due to their unique aroma. They are crushed and used for seasoning. These beetles are shallow or deep fried in oil. Diving beetles and water scavenger beetles are sometimes ground into a paste with spices. Dragonfly nymphs, water scorpions, and ferocious water bugs are used in soups or steam roasted in banana leaves. In such cases, they are often cooked together with fish and shellfish. In Japan, caddis flies, stoneflies, diving beetles, and water scavengers are boiled down in soy.

Marketing

In addition to home consumption, insects are often gathered for sale at markets. Insects are more expensive than other ingredients when priced by weight, and are considered a delicacy. In northeast Thailand and Laos, insects gathered in aquatic areas near cities are taken to the city markets for sale. They are sold live or cooked. Giant water bugs, diving beetles, water scavengers, and dragonfly nymphs are often sold separately.

These insects are very popular in Thailand. However, they are in short supply due to factors such

as environmental changes in rural areas, declining numbers of gatherers, the insects' increasing scarcity, and high labor costs. As a result, they are increasingly being imported from Cambodia as they are more readily available and can be bought cheaply in large volumes. Giant water bugs are particularly popular and, in Thailand, many are grown commercially. In Thailand and Vietnam, the use of commercially-produced giant water bugs and flavorings is becoming more widespread.

Conclusion

In Southeast Asia, aquatic insects are very popular due to their unique flavors and they are proactively gathered. Giant water bugs, which are expensive by themselves, and Japanese caddis flies and stoneflies are cooked to bring out their individual characteristics. On the other hand, other insects are caught together with prawns, crabs, and small fish, and are often cooked together. Their high market values mean that people proactively gather them, and the catches make a small but significant contribution to the household income.

In Thailand, insects are in decline due to the use of agricultural chemicals in paddy fields and the deteriorating environment. As a result, they are increasingly imported from Cambodia and Laos.

As the above study shows, insects constitute a significant aquatic resource, and it is necessary to promote an awareness of the importance and value of "insecting" as a unique kind of "fishing". Insects are easily affected by pollution and changes to their habitats, and so we must be careful to avoid excessive environmental alterations in aquatic areas, while promoting the sustainable utilization of this valuable resource.

References

- Nonaka, K. 2005. Ethnoentomology Natural history of Insect-eating . University of Tokyo Press. (in Japanese)
- Mitsubishi, I 2009. Encyclopedia of edible Insects. Yasaka Shobo. (in Japanese)