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Be vigilant to different mosquito breeding grounds

More than 70 different species of mosquitoes were recorded in Hong Kong. Many people have the misunderstanding that mosquitoes breed only in stagnant water. In fact, mosquitoes breed in many different kinds of habitats according to the species. Knowing the different mosquito breeding habitats is a prerequisite for the early detection of the targeted mosquito species as well as initiation of effective prevention and control of the mosquitoes. (Advice on mosquito control and prevention can be found on the website of Food and Environmental Hygiene Department (www.fehd.gov.hk)).

Aedes albopictus, the vector of dengue fever, prefers to breed in small water bodies, such as keyholes of manhole covers, tree holes, bamboo sticks, abandoned tyres, rock pools, sand traps, water-logged surface channels as well as accumulated water on canvas, in containers, in flower pot saucers or even in fallen leaves. *Culex tritaeniorhynchus*, the vector of Japanese encephalitis, usually breeds in swampy fields with vegetations. Given that the size of the usual habitat is huge, this species could reach high population density in rainy season, especially in the New Territories. *Culex quinquefasciatus*, a vector of West Nile fever, breeds in polluted water bodies.



Many different kinds of
mosquito breed in
slow-flowing water

This species is ubiquitous locally.

All of the above-mentioned mosquitoes can live in water bodies rich in organic matter. However, some other species can only survive in clear water. For example, *Anopheles minimus*, the vector of malaria, breeds in slow-running unpolluted streams with marginal vegetation and diffused sunlight. *Anopheles maculatus*, a malaria vector in other countries such as Singapore, also breeds in similar habitat but it prefers sheltered side pools in exposed streams.

Some other species breed in "special" habitats. For example, *Culex sitiens* breeds in brackish water; *Aedes togoi* breeds in salty water of coastal rock pools; *Aedes penghuensis* breeds in intertidal crab holes; *Culex sumatranus* and *Armigeres magnus* breed in pitcher plants; *Tripteroides aranoi* breeds in bamboo stumps; *Armigeres subalbatus* breeds in urine-contaminated water and *Mansonia uniformis* breeds in pond with water plants, like water hyacinth. While some of them are medically important, i.e. transmitting diseases, some of them are only nuisance pests.



Armigeres magnus and
Culex sumatranus breed in
pitcher plant



Tripteroides aranoi
breeds only in bamboo
stumps

The Importance of Specimen Identification on Pest Control

Every person may encounter pests in their daily life. Many people believe that there is one quick-fix solution for all pest problems by using insecticide sprays available from the shelves of supermarkets or over the counter of drug stores and disregard the importance of specimen identification. People handle pest problems in this way always find their methods ineffective.

A very importance aspect of successful pest management is to accurately identify the pest that causes the problem, just as one cannot repair an automobile without knowing why it does not work. While most people can identify many pests by general categories such as ants, flies, cockroaches or rodents, many of them do not attempt to make a more specific identification. For these groups of pest, a specific identification is always necessary so that the appropriate control measures can be developed.

The reason for this is obvious; even though two pests are of the same group, their feeding habit, food preference, shelter and other characteristics may be quite different. Let us take the common commensal

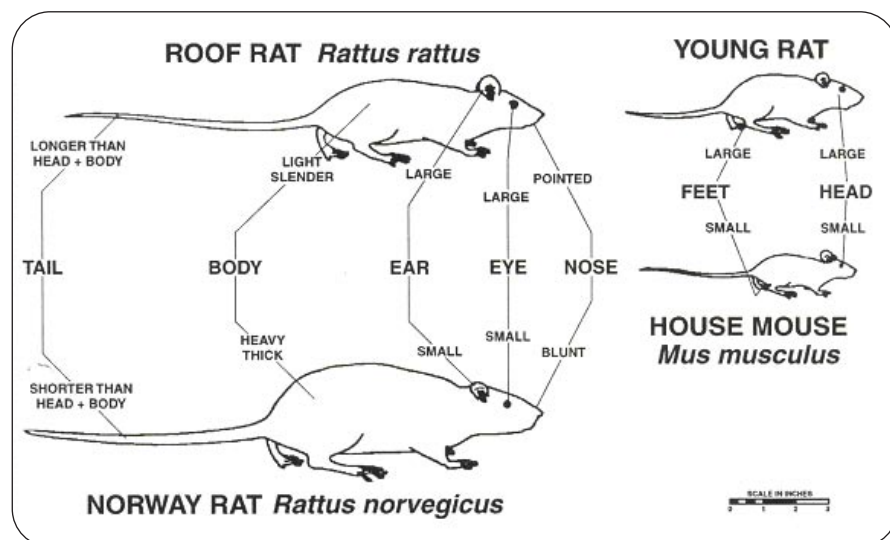
rodents, Norway rat (*Rattus norvegicus*), roof rat (*Rattus rattus*) and house mouse (*Mus musculus*), as examples. All these rodents look alike. Most people are not aware of their differences and neglect the importance of correct identification. They think that the problems caused by the difference species can be treated in the same way. However, it is critically important to find out whether the pests causing the problems are rats or mice, or both.

Firstly, rat and mouse control products, such as cage traps, bait stations and glue boards, come in different sizes and designs. Without first identifying the species causing the problem, the control result would be discouraging if one uses wire cages that are designed for trapping rats to deal with a mice infestation problem. Similarly, it is also a waste of time and money by setting up glue traps designed for trapping mice to tackle a rat problem.

Secondly, control strategies are also different because of different feeding habits and behaviours. When using break-back traps for rat, the traps should be placed two to three metres apart, and baited daily but unset for a few days first. For mice, on the other hand, the traps should be placed at one metre intervals, and always be baited and set on the first day to increase the chance of trapping. The baits to be used are also different among species. Well cooked meat should be used for trapping Norway rat, nuts or fruit for roof rat, and cereals or toasted melon seeds for house mouse.

Pest identification can be a difficult task. Nevertheless, each pest requires a different control method. The essential prelude to the successful extermination of any disquieting pests is obviously correct identification.

Identification of rats and mice



A rat cage



A tamper-proof bait station (arrow)