

More on those pesky mosquitoes

Prevention of Bites

Remember that most mosquitoes do not carry infectious parasites and, even if they do, the number of parasites transmitted may be too low to cause a disease. On the other hand, one bite can be enough. That is why one should avoid being bitten.

Most mosquitoes are crepuscular, most active at dawn or dusk, but some will

feed at any time of the day or night when it is warm enough. If you are working or playing outdoors, try to chose a breezy spot in the sun and away from dense vegetation.

Gloves, head-nets, screen jackets and pants may be useful but are uncomfortable in hot weather. Light colours (whites, yellows) are less attractive to biting flies than dark colours (browns,



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blacks).

Chemical repellents should be applied to clothing where it stretches tightly against your body — at the shoulders, seat, knees and ankles.

Aerosols are the most convenient method of application but are the most expensive and are dangerous if used near the eyes. Liquids are usually more concentrated and hence more effective. Ensure that such repellents do not get onto certain synthetic clothing or the plastic parts of your glasses, sun-glasses, or fishing-gear.

For your house or tent, make sure that you have tight-fitting screens. Apartments over ten stories up do not need screens — mosquitoes don't fly that high. If you travel in tropical countries, make sure you have a screened room or a net to cover your bed.

Killing Mosquitoes

Short-term control of mosquito populations usually means using insecti-

cides against the adults; long-term control deals with modifying habitats of the larvae.

Burning mosquito coils reduces mosquito attacks considerably. The coils repel mosquitoes with the smoke of the burning sawdust — just as any smoky fire. However, coils also contain pyrethrum insecticides. Using such coils or fogging an outside area with insecticides is only effective for a few hours — the new insecticides decompose fairly rapidly and more mosquitoes can be blown in overnight from 20-30 km away.

Insecticides used for adult mosquito control also kill beneficial insects such as bees and are potentially dangerous to humans. If you apply insecticides, wear protective clothing and follow all precautions about concentrations, contamination of food, etc. Fogging equipment often uses propane which is a fire hazard.

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In severe cases, some recommend using residual insecticides inside houses. If you do this, leave the premises (along with your pets) for at least a few hours after the application is done.

For the most effective mosquito control (eradication is impossible), one must focus on the habitats of the eggs and larvae. This involves locating and mapping sites where eggs are laid and larvae mature.

For permanent control, these sites can then have their drainage improved. For year by year control the sites can be treated, in the winter or early spring, with granular larvicides. These are usually standard insecticides incorporated into clay pellets that slowly dissolve in the spring melt-water.

Research on mosquito control brings new possible control measures. A strain of the bacteria *Bacillus thuringiensis* (Bt) is being sold specifically for control of mosquitoes and black flies.

Other work on parasitic fungi and nematodes also looks promising.

In the meantime, swatting mosquitoes will go on as it has since humans inhabited the earth.

Robert Holmberg is a biology professor at Athabasca University. His primary interests are the behaviour and ecology of arthropods — insects, arachnids and their relatives. This is the final installment of his two-part series on mosquitoes.