

REQUIREMENTS AND PROBLEMS FOR CONTROL OF SOME ARTHROPOD PESTS OF MEDICAL IMPORTANCE IN URBAN AUSTRALIA

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Australia has a range of insect and other arthropod pests presenting actual or potential medical and/or public health concerns for human communities.

Australian residential communities are diverse, encompassing small towns scattered throughout the vast landscape of both tropical and temperate environments, wet and dry, and arguably with characteristics that are peculiar to Australia, as well as large cosmopolitan urban centres similar to other major international cities.

Urban communities in Australia are afflicted with many of the same arthropods causing nuisance or presenting a disease risk as are communities in other countries, e.g. non-biting flies, cockroaches, lice, fleas, bedbugs and various mites. These are readily categorised as urban pests. However, the establishment of new suburban communities within or near natural environments, and the continuing expansion of existing urban areas into the surrounding natural bushland (still features of Australian development), provide opportunities for native insects, such as various biting flies, and other arthropods such as ticks, to become 'urban' pests.

With respect to those pests that fall within a stricter definition of urban pests, there are particular concerns in Australia about domestic mosquitoes as nuisance pests and as vectors of human and animal disease. The pest status of head lice and some mites (particularly dust mites and bird mites) may also be of interest to this conference.

With respect to natural habitat surrounding (and often within) urban communities, it is the biting flies and ticks which comprise the species of most concern, and the incidence of exposure varies from situation to situation, as might be expected. Ticks move little from the bushland habitat and afflict only those who enter that environment, whereas biting flies can disperse into domestic environments in search of bloodmeals and thus present a pest or vector threat. The principal biting fly pests in this regard are various 'rural' mosquitoes and biting midges. These are of substantial pest importance in some older and established urban centres, and in many developing urban areas of Australia. Biting midges (*Culicoides* species) continue to present a pest nuisance for suburban residents in some areas of the major cities sited on estuaries of the east coast, and the medical and public health importance of mosquitoes (particularly *Aedes* and *Culex* species) as vectors of arboviruses infecting humans has become increasingly recognised by health authorities in recent years.

Domestic mosquitoes continue to present a pest or disease threat in some urban areas of Australia. *Culex pipiens* group species (*Cx quinquefasciatus*, *Cx molestus*) associated with polluted drainage waters and septic tanks are decreasing in importance as urban pests with more effective disposal of effluent in major urban centres. But 'clean water' container breeders, such as some *Aedes* species, are still of concern as domestic pests and indeed disease vectors. An important case in point is dengue fever, an increasing concern because of the extent of activity of the dengue viruses in the Southeast Asian and Pacific regions and the concomitant threat of introduction to Australia, and also because dengue is now thought to be possibly again endemic in northern coastal Queensland. Although many human infections are imported annually to various parts of Australia, the vector *Aedes aegypti* currently exists only in the state of Queensland. Although some efforts at the community level are undertaken with surveillance and encouraging source reduction measures against this species in a few of the major urban areas, a greater political will is required at state and local government level to reduce the prevalence and geographic distribution of the vector in the state.

