



# NEW ZEALAND BIOSECURE

## Entomology Laboratory



### *Aedes (Ochlerotatus) vigilax* (Skuse)

northern saltmarsh mosquito

**NZ Status: Not present – Unwanted Organism**



#### **Vector and Pest Status**

*Aedes vigilax* is a vector of Murray Valley encephalitis (MVE) (McLean, 1953) and Ross River virus (Russell, 2002). It is a competent laboratory vector of Barmah Forest virus (Boyd and Kay, 1999) and a potential vector of Kunjin and Sindbis (Lee *et al.*, 1984). A number of other viruses have been isolated from this species including Edge Hill, Stratford, Gan Gan, Yacaaba viruses and Termeil viruses (Lee *et al.*, 1984).

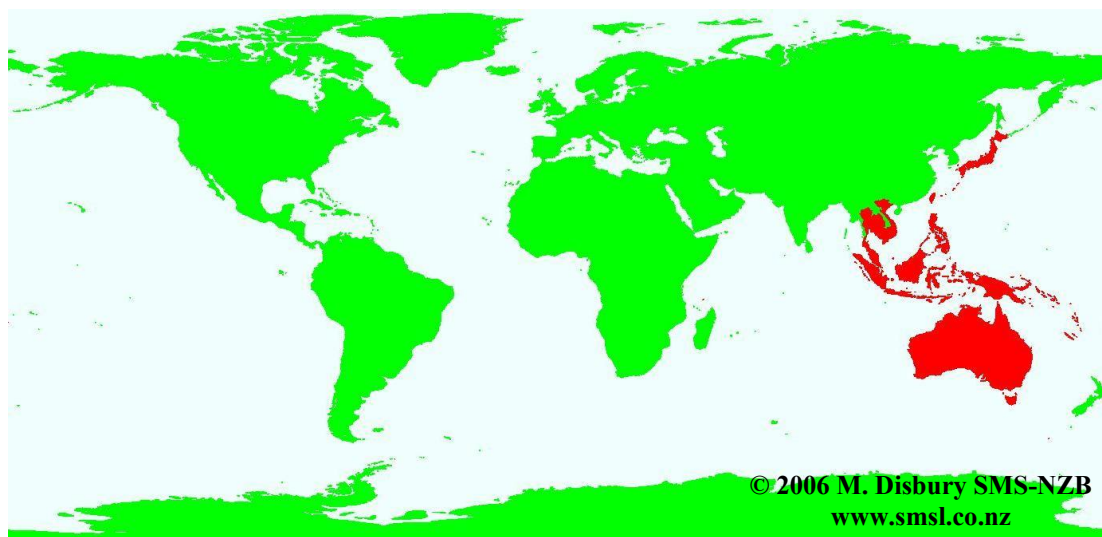
*Aedes vigilax* is the principal vector of non-periodic filariasis in New Caledonia and probably also in the Loyalty Islands (Iyengar, 1954 in Lee *et al.*, 1984), but is not known to be a vector of significance elsewhere (Lee *et al.*, 1984). It is known to carry dog heartworm (*Dirofilaria immitis*) (Bemrick and Moorhouse, 1968 in Lee *et al.*, 1984) and is a potential vector of myxomatosis in coastal Australia.

*Aedes vigilax* is a major coastal pest species for New South Wales and more northern areas of Australia, and also for parts of coastal South Australia (Russell, 1993). It can disperse and be windblown for many kilometres and creates nuisance problems over large areas (Russell, 1993).

#### **Geographic Distribution**

This mosquito is known from the Oriental and Australasian regions including Australia, Fiji, New Caledonia, Loyalty Islands, Solomon Islands, Papua New Guinea,

West Irian Jaya, Seychelles, Taiwan, Indonesia, Malaysia, Thailand, Tonga, Vietnam, Vanuatu, Philippine Is. and the Ryukyu Archipelago (Lee *et al.*, 1984).



This map denotes only the country or general areas where this species has been recorded, not actual distribution

### **Incursions and Interceptions**

This mosquito has been intercepted several times in New Zealand, with specimen(s) intercepted from Fiji between 1979-1982, and twice on aircraft arriving in Auckland from New Caledonia between 1943 and 1944 (Derraik, 2004). More recently, *Ae. vigilax* was intercepted in Christchurch in 2001 and 2002 on flights originating from Australia (Derraik, 2004).

### **Taxonomy**

*Aedes vigilax* belongs to the subgenus *Ochlerotatus*. At least two subspecies have been reported, Mattingly and Brown (1955) described the subspecies *Ae. vigilax vansomeranae* from the Seychelles, and Knight and Hull (1951) named the form in the Philippine Islands as *Ae. vigilax ludlowi*. This form is apparently also present in Thailand and Taiwan (Mattingly and Brown, 1955; Lee *et al.*, 1984). Forms of unknown status occur widely in Indonesia from Sumatra to Celebes (Mattingly and Brown, 1955; Lee *et al.*, 1984).

Morphologically, adult females of this species can be confused with *Aedes camptorhynchus*.

### **Habits and Habitat**

*Aedes vigilax* is a coastal mosquito, associated with estuaries, mangroves and salt marshes (Lee *et al.*, 1984). It breeds in brackish and temporary ground pools e.g. pools left by high tides in mudflat or marshland depressions (Russell, 1993) as well as drains. It has also been collected breeding in fresh water on a number of occasions (Dobrotworsky, 1965; and references in Lee *et al.*, 1984).

In New Caledonia, this species has been observed to be a prolific breeder, breeding in stagnant shallow pools, exposed to direct sunlight (Iyengar, 1965 in Lee *et al.*, 1984).

Females of this species show a high percentage of autogeny, i.e. they can lay fertile eggs without first having a bloodmeal (Kerridge, 1971).

Eggs are laid on damp soil with a low cover of vegetation, but not on bare mud or where there is a film of water (Sinclair, 1976 in Lee *et al.*, 1984) which is liable to be flooded by high tides. The eggs are desiccation resistant (Sinclair, 1976 in Lee *et al.*, 1984) and have been observed to remain viable for at least 116 days at 65% relative humidity and 98 days at 15-20% relative humidity (Kerridge, 1971 in Lee *et al.*, 1984).

Hatching usually occurs after rain or tide events. This species exhibits instalment hatching, so not all eggs hatch at once. This is particularly noticeable in the field (Kerridge, 1971 in Lee *et al.*, 1984). The rate of development of the mosquito larvae is temperature dependent, with completion of a life cycle in around 11 days (Lee *et al.* 1984).

Adults are strong fliers and are known to undertake migratory flights up to 100km upon emergence from a breeding site (Liehne, 1991). They have also been reported 320km from the coast in southern Queensland and even in the centre of Australia at Alice Springs (Roberts, 1937; Marks 1975 in Lee *et al.*, 1984).

Females have been reported to bite during the day in the shade of trees, or in sunlight and at night, indoors and outdoors, however they are generally considered to be an evening biting species (Lee *et al.*, 1984). They will also host-seek during the day near their breeding sites (Lee *et al.*, 1984). This species will bite humans, but will also at bite cattle, horses, rabbits, mice, feral pigs, dogs, and birds including domestic chickens (Lee *et al.*, 1984 and references therein).

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