



NEW ZEALAND BIOSECURE  
Entomology Laboratory



## *Aedes (Halaedes) australis* (Erichson)

saltwater mosquito

**NZ status: Introduced**



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### Vector and Pest Status

*Aedes australis* is a minor vector of Ross River virus in Tasmania and has been shown to be a competent vector of both Ross River virus (Hearnden *et al.*, 1999) and dengue in the laboratory (Weinstein *et al.*, 1997). This species does not usually live in close association with humans (Lee *et al.*, 1984), and rarely bites, so it is not considered a major public health risk (Weinstein *et al.*, 1997; Derraik *et al.*, 2005).

*Aedes australis* has been shown to be a vector of dog heartworm, *Dirofilaria immitis*, in the laboratory (Belkin, 1968; Holder *et al.*, 1999; Lee *et al.*, 1984) though fortunately this filaroid does not currently occur in New Zealand.

Within New Zealand, *Ae. australis* has been found to be a laboratory host of Reovirus type 3, Coxsackie (Lee *et al.*, 1984) A6 virus and to transmit Whataroa virus (Holder *et al.*, 1999). Whataroa virus primarily infects birds but may also infect humans and some other vertebrates (Holder *et al.*, 1999).

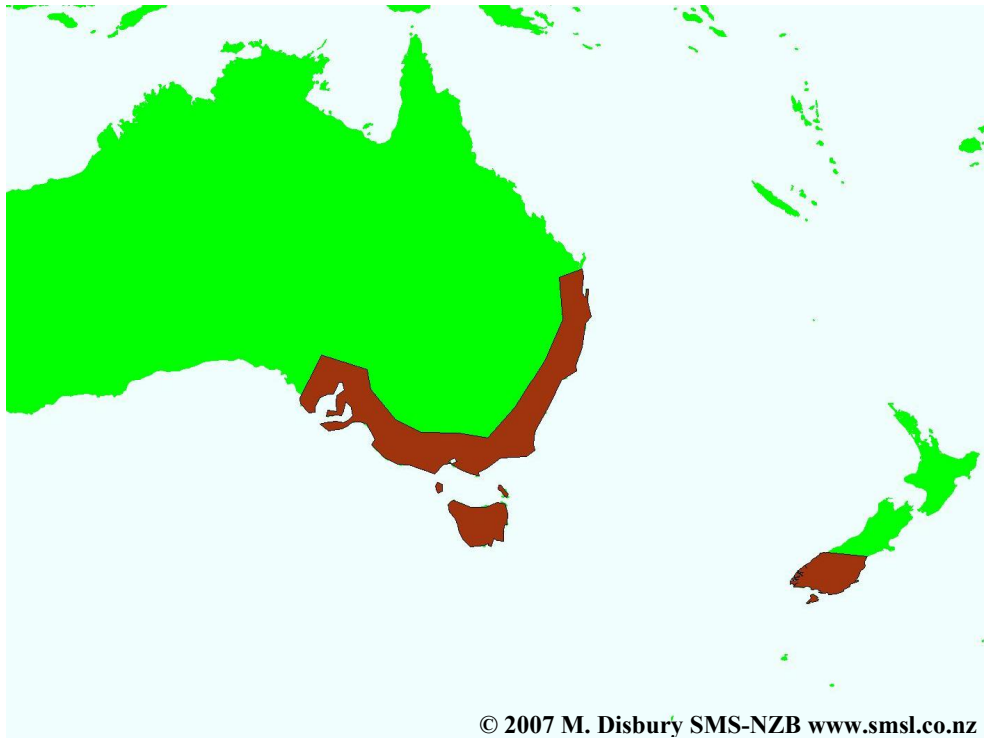
Elsewhere, *Ae. australis* is a known vector of avian malaria-causing protozoa, of which New Zealand has at least one species, *Plasmodium relictum*, and likely also, *Plasmodium cathemerium* (Holder *et al.*, 1999).

*Aedes australis* is only known to be a pest of humans in restricted localities in Tasmania where dwellings are within very close proximity to their breeding habitat (Belkin, 1968).

### Geographic Distribution

*Aedes australis* is an introduced species that was first encountered in New Zealand in 1961 in a boat hull at Stewart Island (Nye, 1962), and was found later in 1962 on mainland New Zealand at ports in Bluff and Dunedin (Belkin, 1968). It remains restricted to the southern half of the South Island (Derraik *et al.*, 2005) but has spread to Southland, Westland (Nye and McGregor, 1964), and north as far as Timaru (Weinstein *et al.*, 1997; Laird, 1995; Laird, 1996).

*Aedes australis* is also found along much of the southern coast of Australia from southern Queensland to New South Wales and Victoria, Tasmania, southern parts of Western Australia, South Australia and also on Lord Howe and Norfolk Island (Belkin, 1968).



NB. This map denotes the general areas where this species has been recorded, not actual distribution.

### Incursions and Interceptions

*Aedes australis* has not been intercepted at New Zealand's borders.

### Taxonomy

*Aedes australis* belongs to the subgenus *Halaedes*. It was moved to the proposed genus *Ochlerotatus* by Reinert *et al.* (2004), and then raised to the genus *Halaedes* (Reinert and Harbach, 2005), but general uncertainty around the proposed changes has seen this species replaced back in the genus *Aedes* subgenus *Halaedes*.

Adults appear very similar to *Aedes (Nothoskusea) chathamicus* (Belkin, 1968) but may be differentiated by the presence of pale scales on the basal half of the proboscis, and wings lacking a patch of remigial setae at the base of the subcosta (Snell, 2005). They may be distinguished from other southern mosquito species by a lack of banding on the tarsi (Nye and McGregor, 1964) and by the presence of bristles and dark scales in their postspiracular area (Edwards, 1932).

### Habits and Habitat

*Aedes australis* usually breeds in saltwater or brackish pools at or just above the high tide line (Belkin, 1968), but has also been found breeding in roadside ditches and in 90% freshwater (Derraik *et al.*, 2005). Breeding usually occurs between October and April with fourth instar larvae able to over-winter (Lee *et al.*, 1984).

Eggs are laid singly at the waterline (Weinstein *et al.*, 1997) and are able to survive and remain viable in cool water of 10-16°C for several months (Lee *et al.*, 1984).

Larvae are highly salt tolerant and can withstand a gradual increase in salinity whilst still showing some survival to adults at up to 18% NaCl (Belkin, 1968). Larvae cannot survive in distilled water past the first instar but can survive in tap water of any concentration of salt water (Lee *et al.*, 1984).

Adult females are autogenous and so can lay their first batch of eggs without first taking a blood meal (Weinstein *et al.*, 1997).

This cold tolerant species (Weinstein *et al.*, 1995) is becoming more common in some southern locations where it appears to out-compete the native *Opifex fuscus* (Laird, 1995; Sandlant, 2002).

*Aedes australis* is not a wide disperser, remaining close to breeding habitat (Holder *et al.*, 1999) and not generally coming into close contact with humans (Weinstein *et al.*, 1997). However, at high densities such as can occur in Tasmania, *Aedes australis* is known to go indoors to bite humans (Holder *et al.*, 1999).

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