



*Opifex fuscus* (Hutton)

saltpool mosquito

**NZ Status: endemic**



Adult Male



Adult Female

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**Vector and Pest Status**

No known or suspected natural vector status (Lee *et al.*, 1987), but it has proven to be a laboratory host of Whataroa virus (Holder, 1999).

Regularly bites humans (G. Mackereth, MAFBNZ, pers. com. 2006; New Zealand BioSecure, unpub. data) and is suspected to bite sea birds and coastal animals.

**Geographic Distribution**

An endemic species to New Zealand *Opifex fuscus* has a spotted coastal distribution around most of the North and South Islands and on some surrounding islands. The North Island distribution includes; South Auckland, Tauranga, Taranaki, Hawke's Bay and Wellington. The South Island distribution includes Nelson, Marlborough, Canterbury and Otago, however this species appears to be no longer present around and south of the Otago peninsula (R. Cane, New Zealand BioSecure, pers. com. 2007).

Offshore New Zealand islands include; Three kings Is, North Auckland Is, Mokohinau Is, Great Barrier Is, Cuvier Is, as well as further afield on North East Is (Snares) (Snell, 2005), Raoul Island, South Meyer Is, L'esperance rock (Watt, 1978) and Cheeseman Is (Kermadecs) (Belkin, 1968; Lee *et al.*, 1987).



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

### **Taxonomy**

*Opifex fuscus* has until recently been in a monotypic genus. Changes by Reinert *et al.* (2004) have suggested moving *Opifex chathamicus* (formerly *Aedes (Ochlerotatus) chathamicus*) into this genus. This change is yet to be accepted.

*Opifex fuscus* larvae have a short barrel-shaped siphon which may allow it to be mistaken for *Ae. notoscriptus* superficially (Miller & Phillips, 1952). The larvae of this species are one of New Zealand's largest, as they store large reserves of fat while in the larval stage (Haegar and Provost, 1965).

The adults are a fairly large black mosquito with no patterns on the legs or body. The wings are slightly brown with only a few dark scales (Miller & Phillips, 1952). The males differ greatly from other mosquito species in that the antennae are not obviously bushy, but have only three spine like hairs (Belkin, 1968). Also, their fore legs are short and stout and have two very long tarsal claws (see photo above) which they use for grasping pupa during mating (Miller & Phillips, 1952).

### **Habits and Habitat**

*Opifex fuscus* is New Zealand's only rock pool mosquito. They are most commonly found in brackish and saline rock pools above the high tide line, but they have also been found breeding in artificial containers close to the sea. They are never found beyond the rocky coast (Miller & Phillips, 1952).

Both pupa and larvae can be found in rock pools all year round (Marks, 1958), with eggs hatching out in higher numbers during summer. The eggs are desiccation resistant and are laid singly just above the water surface (Kirk, 1923; McGregor, 1965). Adult mosquitoes, especially males are usually found on the water surface of the rock pools (Slooten & Lambert, 1983). There may be just a few during winter, but with greater numbers of adults hatching out at beginning at the end of August (Wood 1929), with the highest population numbers in late summer, the pools surfaces may be

crowded with adult mosquitoes (Belkin, 1968). Larvae of this species are able to stay underwater for long periods of time (Graham, 1939).

*Opifex fuscus* are noted to have unusual mating habits (Kirk, 1923; Haegar & Provost, 1965). The male mosquito usually emerges from the pupal stage noticeably earlier than the female. They wait on the surface of the rock pool and using the long claws on its fore legs grab onto a pupa which is rising to the surface to emerge. The male then attempts to mate with the pupa as it is freeing itself from the pupal casing. Males have been observed trying to mate with emerging male pupae, although they usually abandon this fairly quickly. Once a female mosquito has been mated during emergence, they do not mate again and are able to lay their first egg batch autogenously (without a blood meal), and Haegar and Provost (1965) found they will not take a blood meal until after the first batch has been laid. But any subsequent egg batches require a blood meal (Kirk, 1923; Slooten & Lambert, 1983). Females that have not been mated within 24 hours of emergence, will not be mated with thereafter.

*Opifex fuscus* females have a painful bite (Miller & Phillips, 1952) and will bite during both the night (Graham, 1939). They will readily bite humans during the day in summer if located within their habitat range (R. Knox, New Zealand BioSecure, pers. obs., 2006).

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