

Do remnants of native vegetation on farmland provide a refuge for native mosquito species or a source to maintain introduced invasives?

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Land development for farming has created new ecological scenarios for many nuisance and disease organisms as well as for native diversity. The Manawatu rural floodplain was formerly extensive swamp and coastal forest, now converted to livestock farming & fodder cropping with only small fragments of native land cover remaining. This report investigates the occurrence of native and exotic mosquitoes on farmland and in remnants of native vegetation in the lower floodplain area as a basis to consider future climate and land use scenarios for nuisance and potential disease vector species. Adult mosquitoes were sampled at 2-week intervals Jan-April at three farm locations in 2008-10, and in 2010 also in three remnant forest and three wetland locations. CO₂-baited light traps were set out late afternoon-dawn, using 12 traps/night on a rotating schedule to a total of 420 trap-nights. Breeding habitats were identified by standardized dipping for larvae in available water bodies. Data were analysed with regard to species counts, meteorological measures and habitat type. The size and shape of remnant native areas and degree of native character was also considered. Two introduced species, and a common native species were present at all locations. Three further native species were found in forest sites. An expectation that one or both of two other native species might be found at wetland sites was not supported. Seasonal dynamics and the response of one species to severe drought, as occurred in 2008, and the possible role of native remnants in maintaining populations of native and introduced species are examined.

