



NEW ZEALAND BIOSECURE

Entomology Laboratory



Culex (Culex) tritaeniorhynchus Giles

NZ Status: Not Present – NSP Watchlist

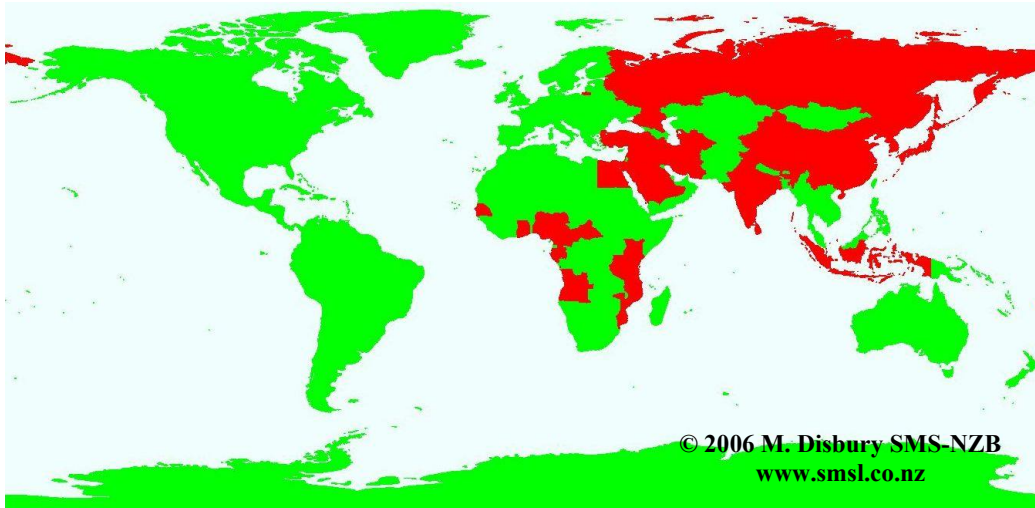


Vector and Pest Status

Culex tritaeniorhynchus is a vector of Japanese encephalitis (Bram, 1967). A *Yunnan orbivirus* has also been isolated from this species in China (Attoui *et al.*, 2005). Isolates of Getah, Sindbis, Tembusu and dengue virus have also been found in this species (Lee *et al.*, 1989).

Geographic Distribution

This species is widely distributed throughout the Oriental region, extending into the Middle east, the Mediterranean and Afrotropical region, China, Russia, Japan, Korea, Micronesia and Indonesia (Lee *et al.*, 1989). It is also found in Angola, Cameroon, Central African Republic, Egypt, Gabon, Gambia, Ghana, India, Iran, Iraq, Israel, Jordan, Kenya, Lebanon, Maldives, Mozambique, Nigeria, Saudi Arabia, Senegal, Sri Lanka, Syria, Tanzania, Togo, Turkey and Turkmenistan (www.wrbu.org).



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

Incursions and Interceptions

This species has not been intercepted in New Zealand.

Taxonomy

Culex tritaeniorhynchus is part of the *Culex vishnui* subgroup, which also includes, *Cx. pseudovishnui* Colless and *Cx. vishnui* Theobald (Toma *et al.*, 2000).

Habits and Habitat

Larvae are found breeding in many temporary, semi-permanent and permanent ground water habitats such as rice paddies, streams, swamps, shallow marshes, low-salinity tidal marshes, ponds, wells, ditches, puddles containing fresh or slightly polluted water (Lee *et al.*, 1989). Larvae have also been collected in pools near stream margins or along margins of slow-moving streams (Lee *et al.*, 1989).

In southern India this species is predominantly collected resting outdoors (Das *et al.*, 2004), however it has been found occurring in unusually high numbers resting indoors during the daytime (Kanojia and Geevarghese, 2004). This species has been observed to overwinter as adults in China (Ji-Guang and Mei, 1996).

Culex tritaeniorhynchus bites throughout the night with minor peaks in activity at 9pm and 2:30am (Lee *et al.*, 1989). Females have a preference for cattle and pigs, but will also occasionally feed on birds and humans (Bram, 1967). In India, *Culex tritaeniorhynchus* was observed to predominantly feed on cattle, and to a lesser extent on ducks, fowl, goats and humans (Arunachalam *et al.*, 2005). Multiple feedings from two and three distinct hosts was observed during this study (Arunachalam *et al.*, 2005).

References

- Arunachalam, N., Philip Samuel, P., Hiriyani, J., Rajendran, R., and Dash, A.P. 2005. Observations of the multiple feeding behaviour of *Culex tritaeniorhynchus* (Diptera: Culicidae), the vector of Japanese encephalitis in Kerala in southern India. *American Journal of Tropical Medicine and Hygiene* 72(2): 198-200.
- Attoui, H., Jaafar, F.M., Belhouchet, M., Aldrovandi, N., Tao, S., Chen, B., Lian, G., Tesh, R.B., de Micco, P. and de Lamballerie, X. 2005. *Yunnan orbivirus*, a new orbivirus isolated from *Culex tritaeniorhynchus* mosquitoes in China. *Journal of General Virology* 86: 3409-3417.

- Bram, R.A. 1967. Contributions to the mosquito fauna of Southeast Asia (Diptera Culicidae) II. The genus *Culex* in Thailand. *Contributions of the American Entomological Institute* 2(1):1-296.
- Das, B.P., Lal, S. and Saxena, V.K. 2004. Outdoor resting preference of *Culex tritaeniorhynchus*, the vector of Japanese encephalitis in Warangal and Karim Nagar districts, Andhra Pradesh. *Journal of Vector Borne Disease* 41: 32-36.
- Kanojia, P.C. and Geevarghese, G. 2004. First report on high-degree endophilism in *Culex tritaeniorhynchus* (Diptera: Culicidae) in an area endemic for Japanese encephalitis. *Journal of Medical Entomology* 41(5): 994-996.
- Ji-Guang, M. and Mei, X. 1996. Progress in studies on the overwintering of the mosquito *Culex tritaeniorhynchus*. *Southeast Asian Journal of Tropical Medicine and Public Health* 27(4): 810-817.
- Lee, D. J., Hicks, M.M., Debenham, M.L., Griffiths, M., Marks, E.N., Bryan, J.H. and Russell, R.C.1989. *The Culicidae of the Australasian region*. Volume 7. Canberra, Australian Government Publishing Service.
- Toma, T., Miyagi, I., Crabtree, M.B. and Miller, B.R. 2000. Identification of *Culex vishnui* subgroup (Diptera: Culicidae) Mosquitoes from the Ryukyu Archipelago, Japan: Development of a species-diagnostic polymerase chain reaction assay based on sequence variation in ribosomal DNA spacers. *Journal of Medical Entomology* 37(4): 554-558.