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VECTOR-BORNE DISEASE NOTIFICATIONS IN NEW ZEALAND

Vector-borne disease is an important environmental health issue, and is inherently linked to the environment. Vector-borne zoonotic diseases, which can pass from animals to humans, involve four agents: the human victim, the pathogen, the vector and the (wildlife) reservoir (Ostfeld et al 2006). For example, West Nile fever is caused by the West Nile virus pathogen, transmitted by mosquito vector from a reservoir of wild birds (Heymann 2004; Stürchler 2006). Pathogens causing particular diseases can be carried by different vector species and be hosted by different wildlife reservoirs.

Pathogens coexist parasitically with wildlife reservoirs, and vectors act as obliging modes of transport helping pathogen dispersal (Holt and Dobson 2006). The opportunity for human–wildlife interaction continues to increase, as human environmental activity expands and encroaches into native forest and previously undeveloped land. Increased human exposure to wildlife results in the opportunistic emergence of new human diseases and a greater likelihood of transmission of known disease pathogens (Moore 2007; Goldberg et al 2008). As a result, newly emerging and pre-existing vector-borne diseases will continue to be an important environmental health issue.

Table 1:
NUMBER OF NOTIFICATIONS OF VECTOR-BORNE DISEASES IN NEW ZEALAND, 1997 - 2010

Disease	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
Malaria	65	73	46	111	54	61	46	33	32	30	25	40	50	44	710
Dengue fever	14	26	9	7	93	70	55	8	11	19	114	113	139	51	729
Rickettsial disease	1			10	5	6	1	2	1			10	6	14	56
Ross virus	1	1	1	2	3	1	1	5	1	2		1	4	5	28
Cysticercosis									3		2				5
Barmah virus infection			1					1	2				2		6
Chikungunya fever											1	1	1		3
Japanese encephalitis								1							1
Lyme disease										1					1
Total	81	100	57	130	155	138	103	50	50	52	142	165	202	114	1539

Source: ESR (2011)

NOTIFICATIONS OF VECTOR-BORNE DISEASES

The number of cases with individual vector-borne diseases continued to increase between 2005 and 2009, and in 2009 the highest number of cases (202) since 1997 was notified. The number of notifications decreased in 2010, primarily due to a marked decrease in dengue fever cases (51 cases) on the previous 3 years.

There were 28 notifications of Ross River fever in 1997–2010, 5 of which occurred in 2010. However, studies have suggested that 25–95% of infections of Ross River fever are unapparent (Stürchler 2006), particularly in children (Heymann 2004).

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