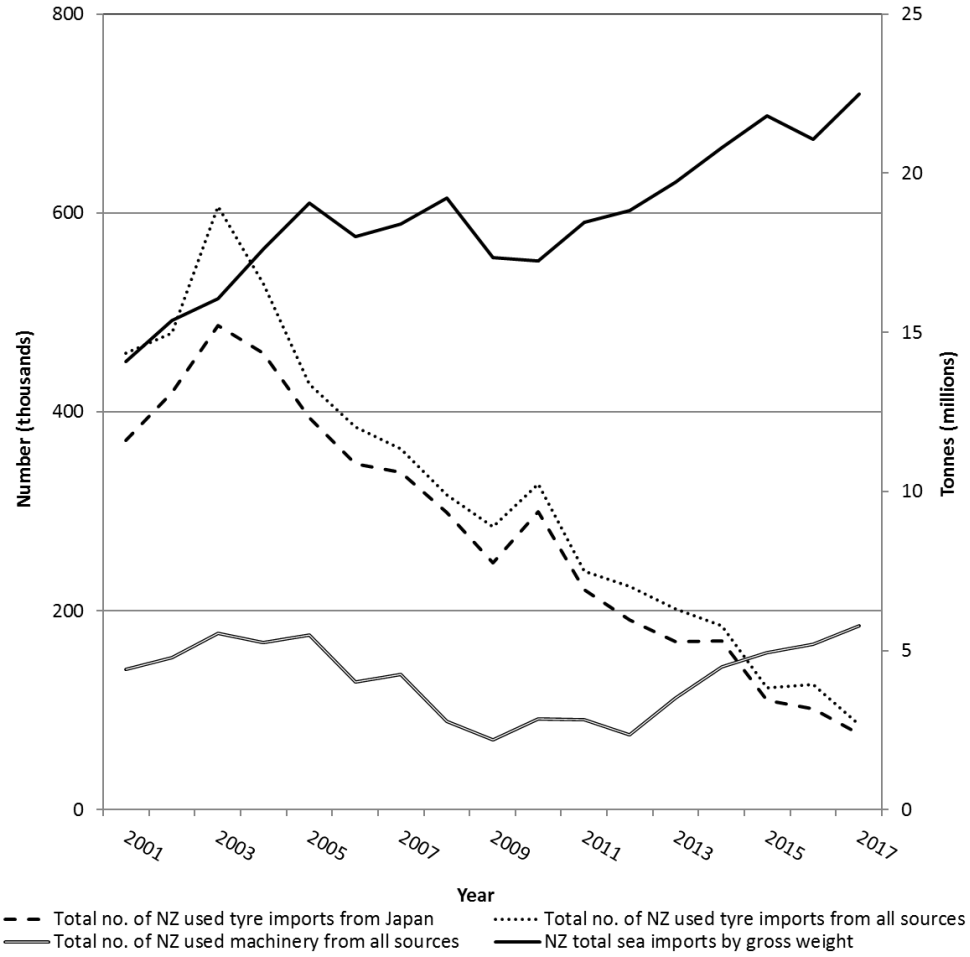
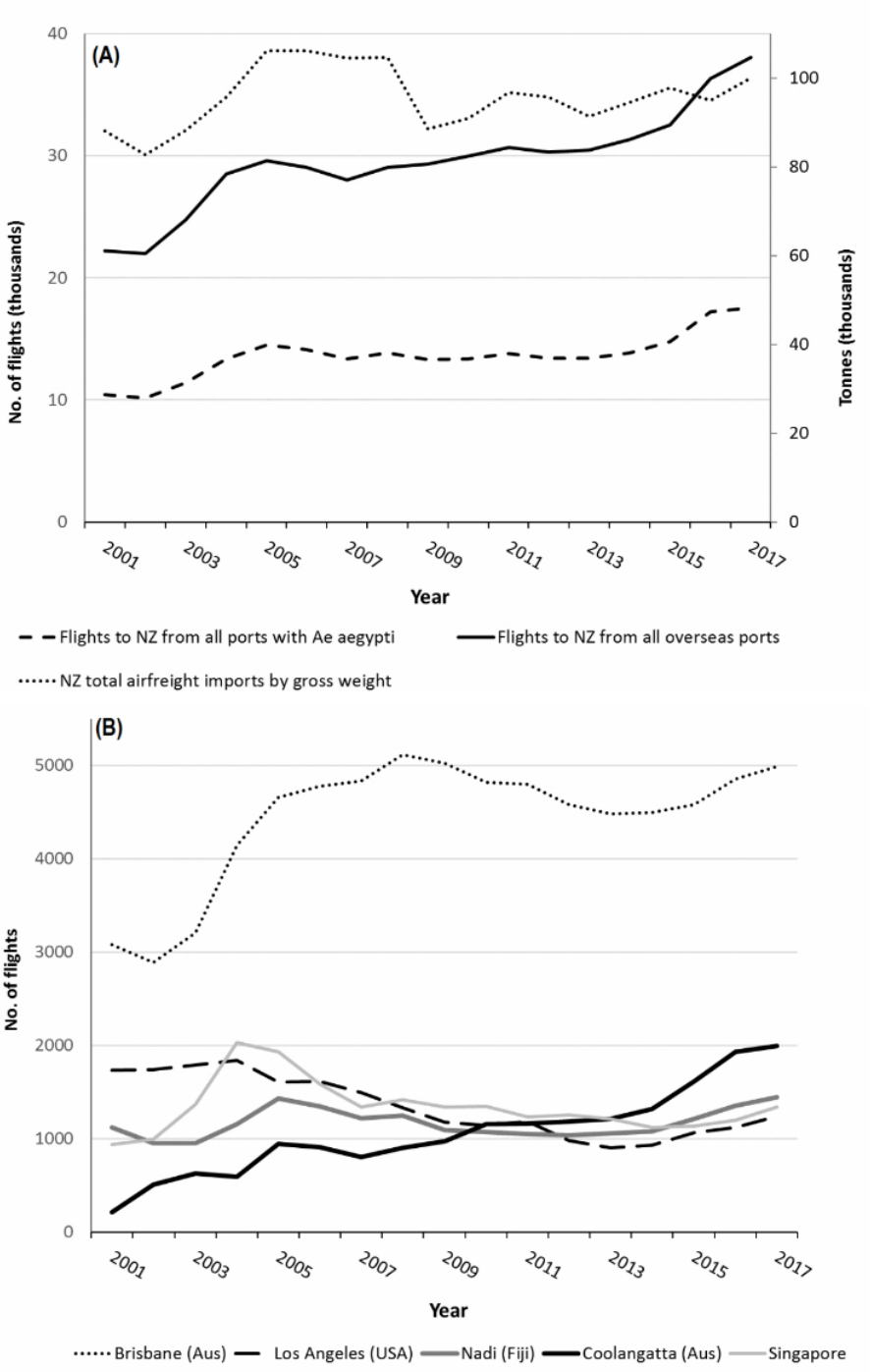
Supplementary S1: New Zealand total gross weight of sea imports, total number of used tyre imports from all sources and from Japan, and total used machinery imports from all sources, 2001—2017



Supplementary S2: (A) (Left axis): Total number of passenger flights to New Zealand from all overseas ports and from ports where Ae. aegypti is established. (Right axis): New Zealand total gross weight of airfreight imports. **(B)** Total number of passenger flights to New Zealand from major overseas ports where Ae. aegypti is established



Supplementary S3: Imports of used tyres by New Zealand, 2001—2017 showing countries where *Ae. aegypti* and *Ae. albopictus* are present

Country of origin	Used tyres		Used vehicles		Presence or absence	
	Quantity	%	Quantity	%	*Ae. aegypti*	*Ae.albopictus*
Japan	4,703,435	87.7	1,959,112	86.61	-	+
Germany	264,294	4.9	184,852	8.17	-	+
Australia	147,414	2.7	16,832	0.74	+	-
Taiwan	41,680	0.8	24	0.00	+	+
S. Korea	39,811	0.7	5,725	0.25	-	+

Singapore	34,107	0.6	679	0.03	+	+
Netherlands	24,055	0.4	162	0.01	-	-
China	22,538	0.4	276	0.01	+	+
USA	17,388	0.3	36,555	1.62	+	+
UK	13,958	0.3	30,269	1.34	-	-
UAE	12,029	0.2	29	0.00	-	-
Italy	11,529	0.2	3,353	0.15	-	+
Thailand	9,394	0.2	686	0.03	+	+
Malaysia	5,403	0.1	103	0.00	-	+
Hong Kong	4,401	0.1	146	0.01	-	+
Belgium	3,283	0.1	671	0.03	-	+
France	3,207	0.1	8,903	0.39	-	+
Spain	1,588	0	519	0.02	-	+
Switzerland	1,106	0	35	0.00	-	+
Brazil	714	0	9	0.00	+	+
Jordan	559	0	105	0.00	-	+
Finland	89	0	7	0.00	-	-
Argentina	75	0	8	0.00	+	-
Indonesia	46	0	11	0.00	+	+
Fiji	34	0	36	0.00	+	+
Sweden	32	0	11,075	0.49	-	-
South Africa	16	0	661	0.03	+	-
Canada	7	0	220	0.01	-	-
Papua New Guinea	6	0	9	0.00	+	+
Botswana	5	0	0	0.00	-	-
Luxembourg	4	0	1	0.00	-	-
Slovakia	4	0	46	0.00	-	+
India	2	0	104	0.00	-	+
Philippines	1	0	5	0.00	-	+
Zimbabwe	1	0	0	0.00	-	-
Other	0	0	731	0.03	_____	_____
Total	**5,362,215**	**100**	**2,261,959**	**100**	**17**	**22**

Present +
Absent -

Supplementary S4: National concerns and development of responses for mosquito interceptions

In early 1993, the need for updated biosecurity measures towards mosquito interceptions in New Zealand was highlighted when *Ae albopictus* larvae were found in a wet used tyre shipment from Japan. This finding was consistent with the steady increase in used tyre importations between 1980 and 1990. As a quick response, from February 1993, all used tyre imports became subject to inspections. Later in the same year, compulsory offshore methyl bromide fumigation was required [1, 2]. In mid-1993, the Biosecurity Act was introduced to update laws and regulations relating to protection of New Zealand from imported organisms. The "Act" covers pre-border risk management and standard setting, border management readiness and response and long-term pest management. To test the updated measures, another extensive survey was undertaken between spring 1993 and autumn 1994, focusing on artificial breeding habitats, mainly used tyres and machinery. The survey showed negative results for any exotic *Aedes* mosquitoes [3].

In 1996, the Ministry of Health commissioned a review of the New Zealand programme for exclusion of exotic mosquitoes of public health significance [4]. Kay [4] reported many flaws in the programme, including an overall underdevelopment with a lack of systematic independent examination, a general deficiency of entomological expertise dealing with mosquitoes, and a non-compliance of the New Zealand authorities with the International Health Regulations at international points of entry. One year after the Kay review, the establishment of *Ae camptorhynchus* in New Zealand was discovered and then subjected to an 11-year successful eradication programme began initiated in January 1999 and costing $71 million [5].

Kay's recommendations were to set new standards and upgrade port surveillance activities. Between 1998 and 2000, the Ministry of Health worked with MPI (the former Ministry of Agriculture and Forestry, MAF) to introduce new guidelines and strategies, and improvement policies for exotic mosquito surveillance. This included the incorporation of import health standards and controls in relation to used tyres, and used machinery, disinsection of aircraft, responses to suspected interceptions of exotic mosquitoes at international airports, sea ports and transitional facilities [6]. A year later, New Zealand BioSecure Entomology Laboratory was established to provide entomological (mainly mosquito) identification services and technical advice for the Ministry of Health. Biosecurity New Zealand developed Import Health Standards for risk goods, including new and used vehicles, machinery and tyres. Import Health Standards state the requirements that must be met by importers to obtain biosecurity clearance. The requirements are regularly updated considering the scientific research advances and the infestation situation of the exotic vector species in the exporting countries. [2]. In 2007, the Biosecurity Science Strategy discussed the future priorities for biosecurity-related science and highlighted the central role of research in biosecurity.

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