High-risk pests caught at New Zealand's border

This factsheet presents information on exotic mosquitoes and other insects caught at our border (international airports and seaports) by New Zealand's mosquito surveillance programme.

Key facts

In 2018, there were 17 interceptions containing mosquitoes of overseas origin

Twenty species of high-risk mosquito species of public health concern were caught between 2009–2018. *Culex quinquefasciatus, Aedes aegypti* and *Aedes vexans* were the most commonly intercepted species

Forty-four percent of interceptions of overseas origin originated from the Pacific region between 2009–2018. Australia was the most common country of origin

Thirty-nine percent of mosquito interceptions of overseas origin were discovered among 'other cargo' (eg, household goods, shipping containers—contents not specified) between 2009–2018

Background information

Insects, especially mosquitoes, are experts at international hitchhiking: eg, hiding in aircraft holds, laying larvae in puddles on ships. Exotic mosquitoes are highly unwanted in New Zealand due to their ability to spread serious mosquito-borne infectious diseases (eg, dengue fever, malaria).

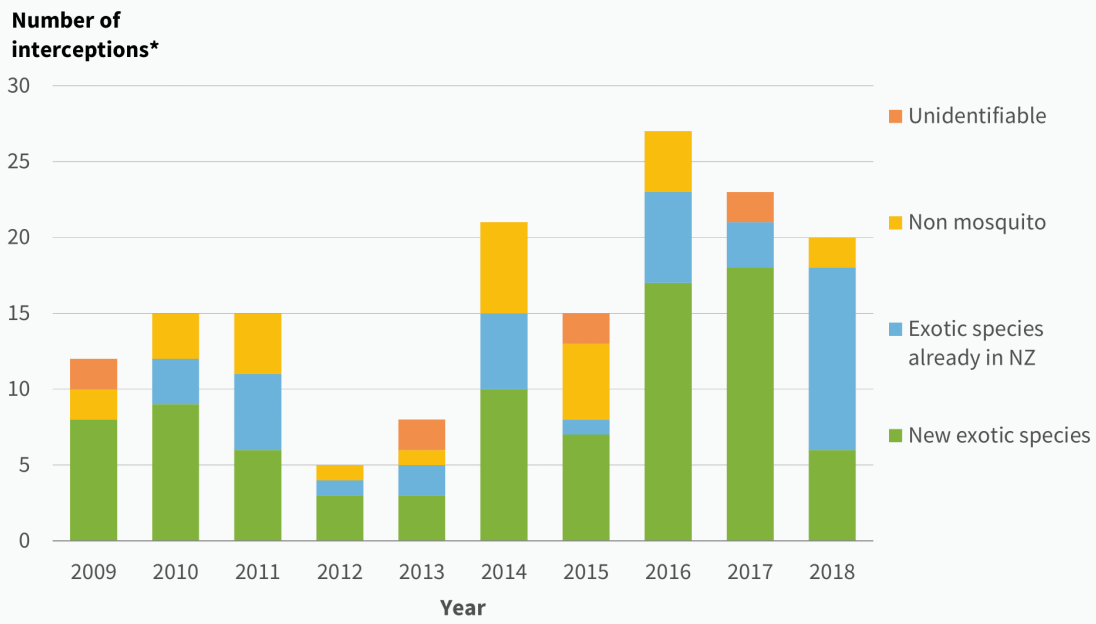
Various international activities help prevent pests crossing borders. For example, international aircraft are regularly sprayed with insecticide, and freight cargo are sealed until entering inspection zones. National mosquito surveillance takes place at New Zealand's border: international airports and sea-ports. This helps capture exotic mosquitoes to prevent them from establishing. It also tells us which exotic mosquitoes are arriving at our borders, where they are coming from, and how they are travelling (eg, air, sea, cargo).

Suspected mosquito interceptions of overseas origin, 2009–2018.

Mosquitos of **overseas origin** include **new exotic mosquito species** entering New Zealand and **exotic species already in New Zealand** re-entering New Zealand.

Between 2009 and 2018, there were **119 interceptions of overseas origin** (Figure 1).

Figure 1: Number of mosquito interceptions of overseas origin, 2009–2018



***Note:** Some interceptions include several insects, which fall under different categories. Therefore, the total of all the categories is higher than the number of interceptions.
Source: NZ BioSecure 2019a

An interception means at least one suspected mosquito was identified at the border at one place and time (eg, in a shipment of bananas). Each year, some interceptions turn out to be insects of other types (non-mosquitoes) or exotic mosquito species already established in New Zealand (Figure 1). These other interceptions help flag potential routes for high-risk pest entry across our border.

In 2018, there were 17 interceptions containing mosquitoes of overseas origin. This compares to an average of 12 interceptions between 2009 and 2018.

Of the 17 interceptions in 2018, 12 contained mosquitoes whose species is already established in New Zealand. Six interceptions contained new exotic mosquitos. Note: one interception contained mosquitos from both categories.

It is difficult to tell if year-to-year variation in interception numbers are statistically different due to small annual numbers and gradual improvements in the border surveillance programme over time.

Over 83% of all interceptions of overseas origin took place in the **Auckland** region between 2009 and 2018. Wellington was the next most frequent location (7%) and then Christchurch (6%).

37 types of exotic mosquito species were intercepted, 2009–18

Thirty-seven types of exotic mosquitoes were caught at the New Zealand border between 2009 and 2018 (NZ BioSecure 2019a). Twenty were high-risk species, that is, on New Zealand's list of exotic mosquitoes of public health concern (NZ BioSecure 2019b). These included 24 interceptions of *Aedes aegypti* (the 'Yellow Fever mosquito'; a severe-risk species for many diseases eg, Chikungunya, Zika, dengue and yellow fevers) and nine interceptions of *Aedes vexans* (the 'Floodwater mosquito'; capable of carrying West Nile virus). *Culex quinquefasciatus, Aedes aegypti* and *Aedes vexans* were the species most commonly intercepted. A table summarising all mosquito interceptions of overseas origin, between 2009 and 2018, can be viewed on the EHINZ website.

Interceptions of overseas origin were most frequently from countries in the Pacific region

Forty-four percent of interceptions of overseas origin originated from the Pacific region (Table 1) (NZ BioSecure 2019a). Between 2009 and 2018, Australia was the most common source country for interceptions (46 interceptions: 11 non-mosquito, 34 exotic mosquito, 3 unidentifiable). The next most common sources were Ecuador (14), USA (11) and Fiji (9).

Table 1: Number of mosquito and non-mosquito interceptions of overseas origin, by region and country, 2009–2018.

Region of origin	Country of origin (Number of interceptions)	Percent of total interceptions	Travel Mode
Pacific	Australia (46), Fiji (9), New Caledonia (2), Niue (1), Papua New Guinea (1), Samoa (2), Tahiti (1), Tonga (3), Vanuatu (1) Total = 66	43.7	Sea: 75.8% Air: 24.2%
Americas	Argentina (1), Chile (2), Colombia (2), Ecuador (14), Mexico (1), Panama (1), USA (11) Total = 32	21.2	Sea: 84.4% Air: 15.6%
Asia	Germany (3), Netherlands (1), UK (2) Total = 6	20.5	Sea: 71.0% Air: 29.0%
Europe	Germany (3), Netherlands (1), UK (2) Total = 6	4	Sea: 100%
Other/Unknown	Unknown (16) Total = 16	10.6	Sea: 6.3 % Air: 87.5% Unknown: 6.3%

Source: NZ BioSecure 2019a

These patterns may reflect the closer travel and trade relationships New Zealand has with Pacific countries, particularly Australia.

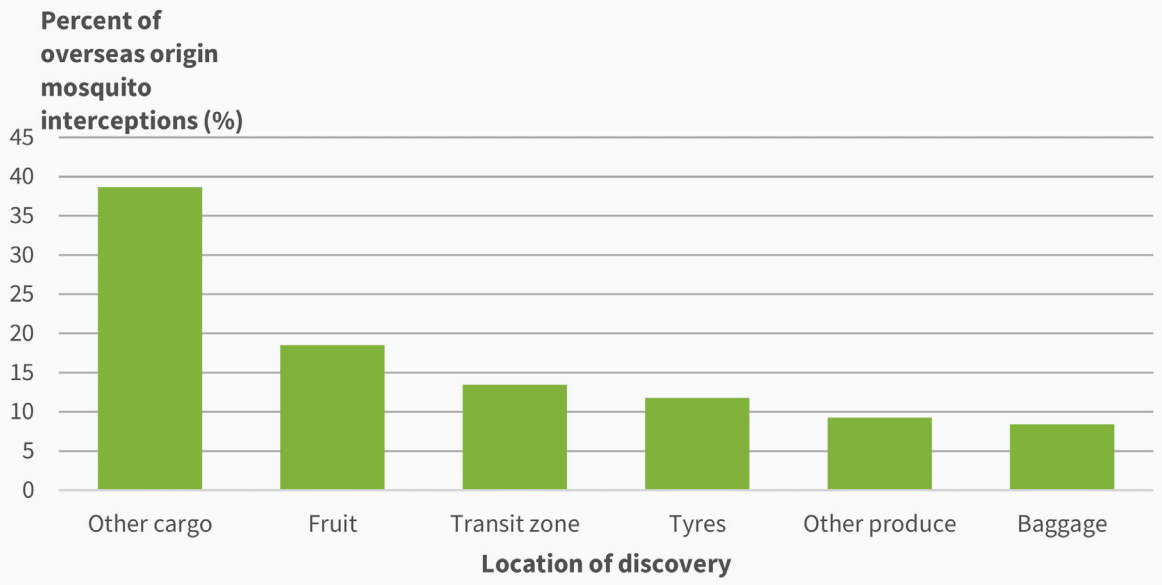
Of note, there has been an increase in interceptions from South America in the last decade when compared with historical records prior to this (Derraik 2004). This may be related to increasing globalisation of travel and trade. The Americas were the second most common region for interceptions of overseas origin between 2009 and 2018 (Table 1).

High-risk pests most often travel by sea and in ‘other cargo’

Between 2009 and 2018, 70% of mosquito and non-mosquito interceptions were suspected to have travelled by sea (NZ BioSecure 2019a). In 2018, over 99% of imported goods to New Zealand were transported by sea (Statistics NZ 2019).

Between 2009 and 2018, 39% of interceptions of suspected mosquitoes of overseas origin were found transported alongside ‘other cargo’ (eg, household goods, shipping containers—contents not specified). ‘Fruit’ (eg, bananas, grapes) and the ‘Transit zone’ also made up substantial proportions of discovery locations at the New Zealand border (Figure 2).

Figure 2: Mosquito interceptions of overseas origin, by location of discovery at the New Zealand border, 2009–2018



Note: For more information, a table of annual intercept counts and locations is presented on the EHINZ webpage
Source: NZ BioSecure 2019a

Data for this factsheet

Data comes from New Zealand BioSecure Entolomogy Laboratory (NZ BioSecure) online reporting of endemic New Zealand mosquitoes (NZ BioSecure 2019). For additional information, see the metadata link below.

References

Derraik JGB. 2004. Exotic mosquitoes in New Zealand: a review of species intercepted, their pathways and ports of entry. *Aust N Z J Public Health* 28(5): 433 – 44.

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Other Border Health topics include:

Border Health in New Zealand

Exotic mosquito species established in New Zealand

Overseas infectious diseases of priority concern

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Further information

For descriptive information about the data Metadata Sheet

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