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

There were 11 interceptions containing mosquitoes of overseas origin in 2019.

19 types of high-risk mosquito species of public health concern were caught between 2010–2019. *Culex quinquefasciatus*, *Aedes aegypti* and *Aedes vexans* were the most commonly identified species.

39.5% of all interceptions of overseas origin originated from the Pacific region between 2010–2019. Australia was the most common country of origin.

35.2% of mosquito interceptions of overseas origin were discovered among 'other cargo' (eg, household goods, shipping containers—contents not specified) between 2010–2019.

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).

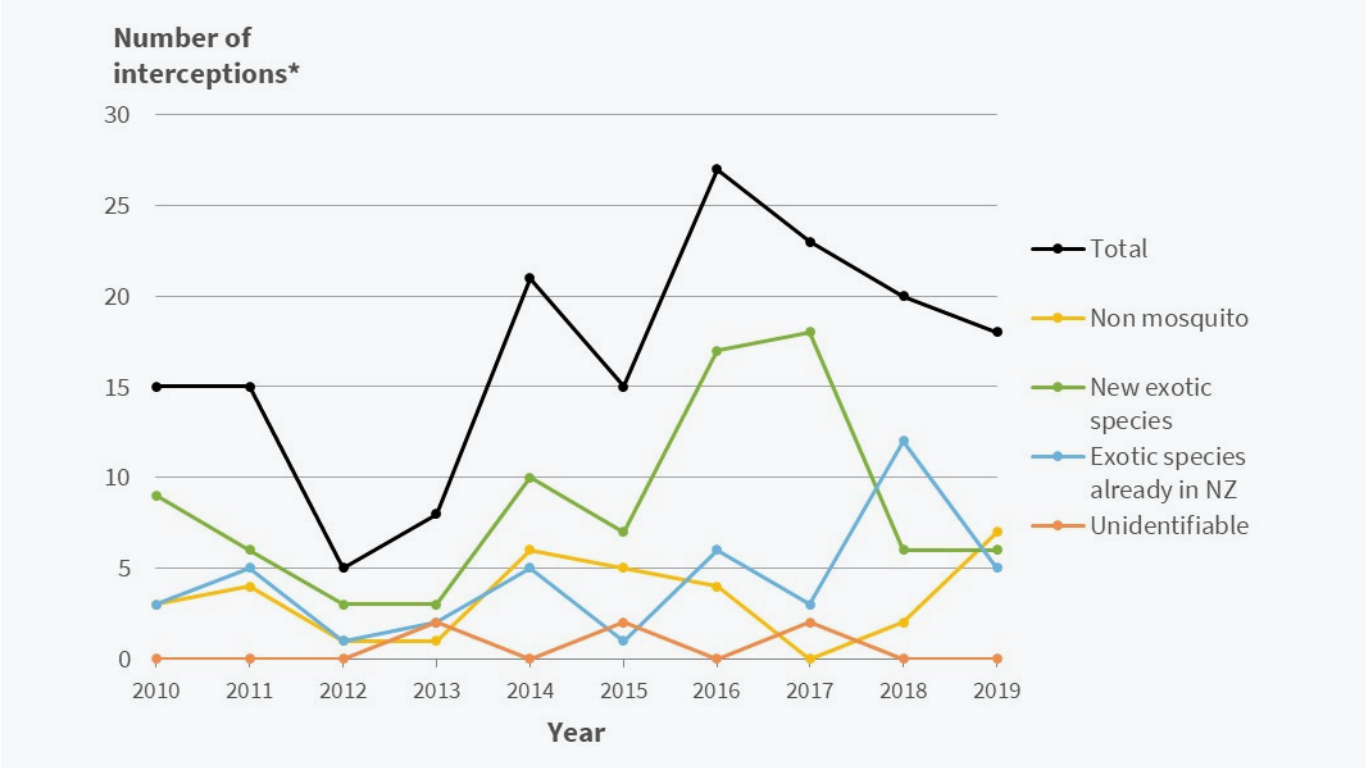
Various international activities help prevent pests crossing borders. For example, international aircraft are regularly sprayed with insecticide, and freight cargo are sealed until entering inspection zones. National mosquito surveillance takes place at New Zealand's border: international airports and seaports. 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, 2010–2019

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

Between 2010 and 2019, there were **122 interceptions of overseas origin** (Figure 1).

Figure 1: Number of mosquito interceptions of overseas origin, 2010 – 2019



***Note:** An interception may include several insects which fall into different categories. Therefore, the sum of all categories is higher than the total number of interceptions.
Source: NZ BioSecure 2020a

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 2019, there were 11 interceptions containing mosquitoes of overseas origin. This compares to an average of 12 interceptions per annum between 2010 and 2019.

Of the 11 interceptions in 2019, five contained mosquitoes whose species is already established in New Zealand. Six interceptions contained new exotic mosquitos.

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 77% of all interceptions of overseas origin took place in the Auckland region between 2010 and 2019. Christchurch was the next most frequent location (11%) and then Wellington (7%).

40 types of exotic mosquito species were intercepted, 2010–2019

Forty types of exotic mosquitoes were caught at the New Zealand border between 2010 and 2019 (NZ BioSecure 2020a). Nineteen were high-risk species, that is, on New Zealand's list of exotic mosquitoes of public health concern (NZ BioSecure 2020b). These included 22 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 2010 and 2019, can be viewed **here**.

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

Of all interceptions of overseas origin, 39.5% originated from the Pacific region (Table 1) (NZ BioSecure 2020a). Between 2010 and 2019, Australia was the most common source country for interceptions (41 interceptions: 29 exotic mosquito, 12 non-mosquito, 2 unidentifiable. Note: two interceptions contained a mixture of exotic-mosquito, non-mosquito or unidentifiable species). The next most common were Ecuador (14), USA (11) and Fiji (10).

Table 1: Number of mosquito and non-mosquito interceptions of overseas origin, by region and country, 2010–2019.

Region of origin	Country of origin (Number of interceptions)	Percent of total interceptions	Travel mode
Pacific	Australia (41), Fiji (10), Tonga (3), New Caledonia (2), Samoa (2), Niue (1), Papua New Guinea (1), Tahiti (1), Vanuatu (1) **Total: 62**	39.5	Sea: 72.6% Air: 27.4%
Asia	India (7), China (6), Japan (4), Singapore (4), Philippines (3), Thailand (3), Hong Kong (2), South Korea (2), Malaysia (2), Taiwan (2), Bangladesh (1), Cambodia (1), Indonesia (1), Vietnam (1) **Total: 39**	24.8	Sea: 64.1% Air: 30.8% Unknown: 5.1%
Americas	Ecuador (14), USA (11), Chile (2), Colombia (2), Argentina (1), Mexico (1), Panama (1) **Total: 32**	20.4	Sea: 84.4% Air: 15.6%
Europe	Germany (3), UK (2), Belgium (1), Netherlands (1) **Total: 7**	4.5	Sea: 100.0%
Other/Unknown	Unknown (17) **Total: 17**	10.8	Sea: 17.6% Air: 76.5% Unknown: 5.9%

Source: NZ BioSecure 2020a

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

Of note, there has been an increase in interceptions from South America in recent decades 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 third most common region for interceptions of overseas origin between 2010 and 2019 (Table 1).

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

Between 2010 and 2019, 68.1% of mosquito and non-mosquito interceptions were suspected to have travelled by sea (NZ BioSecure 2020a). In 2019, over 99% of imported goods to New Zealand were transported by sea (Statistics NZ 2020).

Between 2010 and 2019, 35.2% 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) made up 18.0% of discovery locations at the New Zealand border, followed by 11.5% each for the transit zone, tyres, other produce, and baggage (Figure 2).

Figure 2: Mosquito interceptions of overseas origin, by location of discovery at the New Zealand border, 2010 –2019

Source: NZ BioSecure 2020a

Data for this indicator

Data comes from New Zealand BioSecure Entolomogy Laboratory (NZ BioSecure) online reporting of endemic New Zealand mosquitoes (NZ BioSecure 2020). 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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