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High-risk insects caught at New Zealand's borders

This factsheet presents updated 2021 data on exotic mosquitoes and other insects caught at our border (international airports and seaports) by New Zealand's mosquito surveillance program. 2017-2021 data is aggregated for a range of topics. This report focuses on mosquitoes which pose a threat to New Zealand's public health sector.

Over a five-year period, 2017–2021, there were 107 high-risk insect interceptions, with the majority originating from Asia (42 interceptions) and the Pacific (28 interceptions).

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Airport-based interceptions are consistently highest in Auckland, while Christchurch had the most seaport-based interceptions in 2020 and 2021.

In 2021 there were 20 interceptions of high-risk insects with international origins, similar to previous years despite COVID travel restrictions.

While Tauranga and Whangarei are the busiest seaports in the country, Auckland and Christchurch recorded the most interceptions in 2017–2021.

72 interceptions

21 alive

53 in cargo/other

the most common site of interceptions

30 interceptions

17 alive

11 in transit facilities

the most common site of interceptions

Note: Interceptions from 2017-2021.

Background information

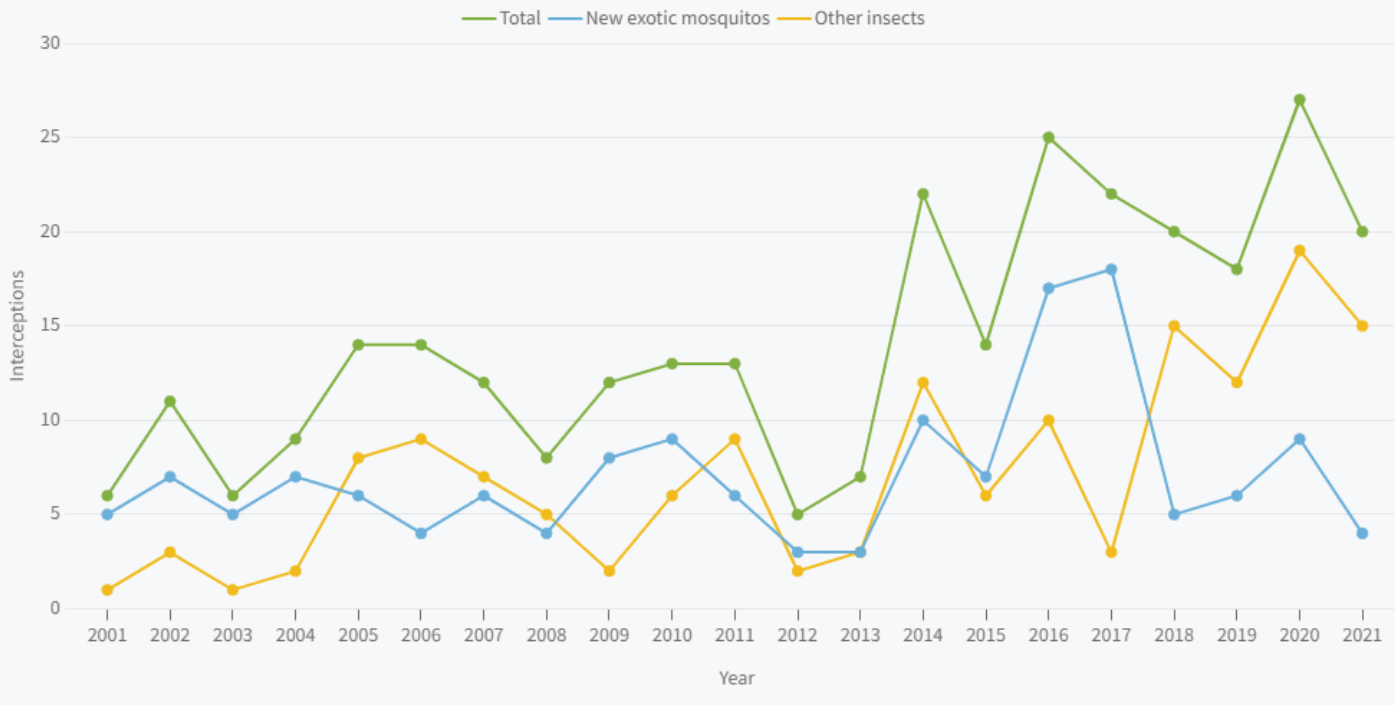
From 2017 to 2021 , over 99% of international travellers arrived in New Zealand by air. In comparison, roughly 99% of all imported goods, based on mass, arrived by sea. While COVID-19 restrictions caused a ten-fold decrease in incoming travellers, incoming cargo remained steady over this time (Statistics NZ 2022a, 2022b). As a result, much of the following analysis is broken down by air and sea to closely monitor changes in pathways of insects entering New Zealand.

For information relating to this factsheet, such as different categories of insects intercepted, please visit the website.

Interceptions of international high-risk insects remained high since 2014

In 2014 there was a sharp increase in interceptions of potentially high-risk insects (Figure 1). There has been an average of 21 interceptions per year since 2014. Prior to this, there was an average of 10 interceptions per year. The cause of this increase is unknown.

Figure 1 Number of potentially high-risk insect interceptions of international origin, 2001–2021



Note: One interception may include several insects which fall into different categories. Therefore, the sum of all categories may be higher than the total number of interceptions for that year.
Other insects are a combination of exotic mosquitoes already in New Zealand and non-mosquito's. Unidentified exotic species is reported. However, there are two or fewer interceptions of this type each year.

Source: NZBioSecure 2022.

While new exotic species are a direct threat to New Zealand health, the other categories, described as "other insects" in Figure 1, can assist in identifying routes that high-risk insects could use to cross our borders. There was an average of five new exotic species interceptions per year since 2001, with a spike in 2016 and 2017.

Seaports have more interceptions but are not necessarily higher risk

From 2017–2021, there were 107 high-risk insect interceptions across New Zealand. The majority of these interceptions (72 interceptions) occurred at seaports (Table 1). However, there was very little difference between the number of interceptions of live insects at airports (18% of total) and at seaports (23% of total).

Living specimens that arrive in New Zealand are the highest concern. These interceptions have survived decontamination procedures and have the potential to escape into the environment. Given both seaports and airports had a similar number of living interceptions over this five-year period, both points of entry present a potential risk to New Zealand.

Table 1 Number of interceptions of international origin, by mode of entry and living status, 2017 – 2021.

Mode of entry	Living status	Interceptions	Proportion of total
Air	Alive	17	18%
	Dead	12	13%
Subtotal	-	29	-
Sea	Alive	22	23%
	Dead	43	46%
Subtotal	-	65	-
Total	-	**94**	-

Note: Eight interceptions did not record the living status of the sample and a further five interceptions did not record mode of entry. These 13 interceptions were not included in the denominator value for proportions.

Source: NZBioSecure 2022.

A busier port does not necessarily mean more interceptions

Of the 107 interceptions from 2017–2021, Auckland had the most interceptions at airports, which is understandable given it also has the highest number of international travellers (Table 2). However, Auckland also had the highest number of seaport interceptions followed by Christchurch. This is despite the Tauranga and Whangarei having the busiest seaports in the country, based on mass of goods transported.

Table 2 Number of interceptions of international origin, by mode and port of entry, 2017 – 2021.

Mode of entry	Port of entry	Interceptions	Busiest ports	Proportion of total
Air	Auckland	26	Auckland	76.0%
	Christchurch	2	Christchurch	12.6%
	Hutt/Wellington	1	Wellington	6.7%
	Ohakea	1	Queenstown	4.6%
Subtotal	-	30	-	99.9%
Sea	Auckland	30	Tauranga	23.0%
	Christchurch	22	Whangarei	22.4%
	Hutt/Wellington	8	Auckland	21.8%
	Tauranga	5	Lyttleton	8.7%
	Other	7	Invercargill	6.2%
Subtotal	-	72	-	82.1%
Total	-	**102**	-	-

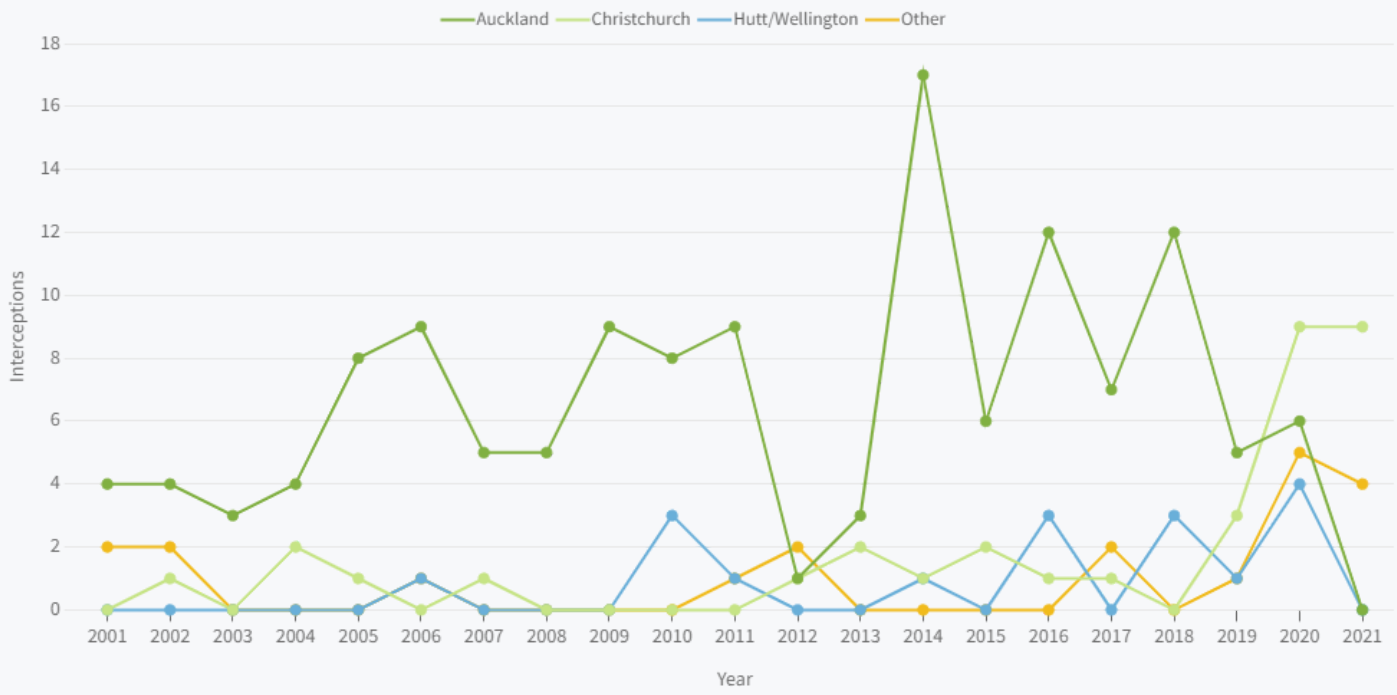
Notes: Any specimen of unknown origin caught at a port or in traps surrounding the port is considered to be of international origin and included in the surveillance dataset.
Other refers to all seaports which recorded one interception including Hastings, MidCentral, Nelson, Dunedin, Taranaki, Tairawhiti and Waikato.
Busiest airports were determined based on numbers of international travellers from StatsNZ.
Busiest seaports were determined based on the mass of imported goods from StatsNZ.

Source: NZBioSecure 2022, Statistics NZ 2021a, Statistics NZ 2021b.

Christchurch seaport records the most interceptions for second straight year

One notable change that has occurred recently is the pattern of interceptions at seaports around the country, shown in Figure 2. In 2021, Auckland and Wellington recorded zero high-risk insect interceptions. In contrast, in 2020 and 2021, interceptions at seaports in Christchurch and other regions were the highest on record.

Figure 2 Number of notifications of international origins at seaports, by seaport, 2001–2021.



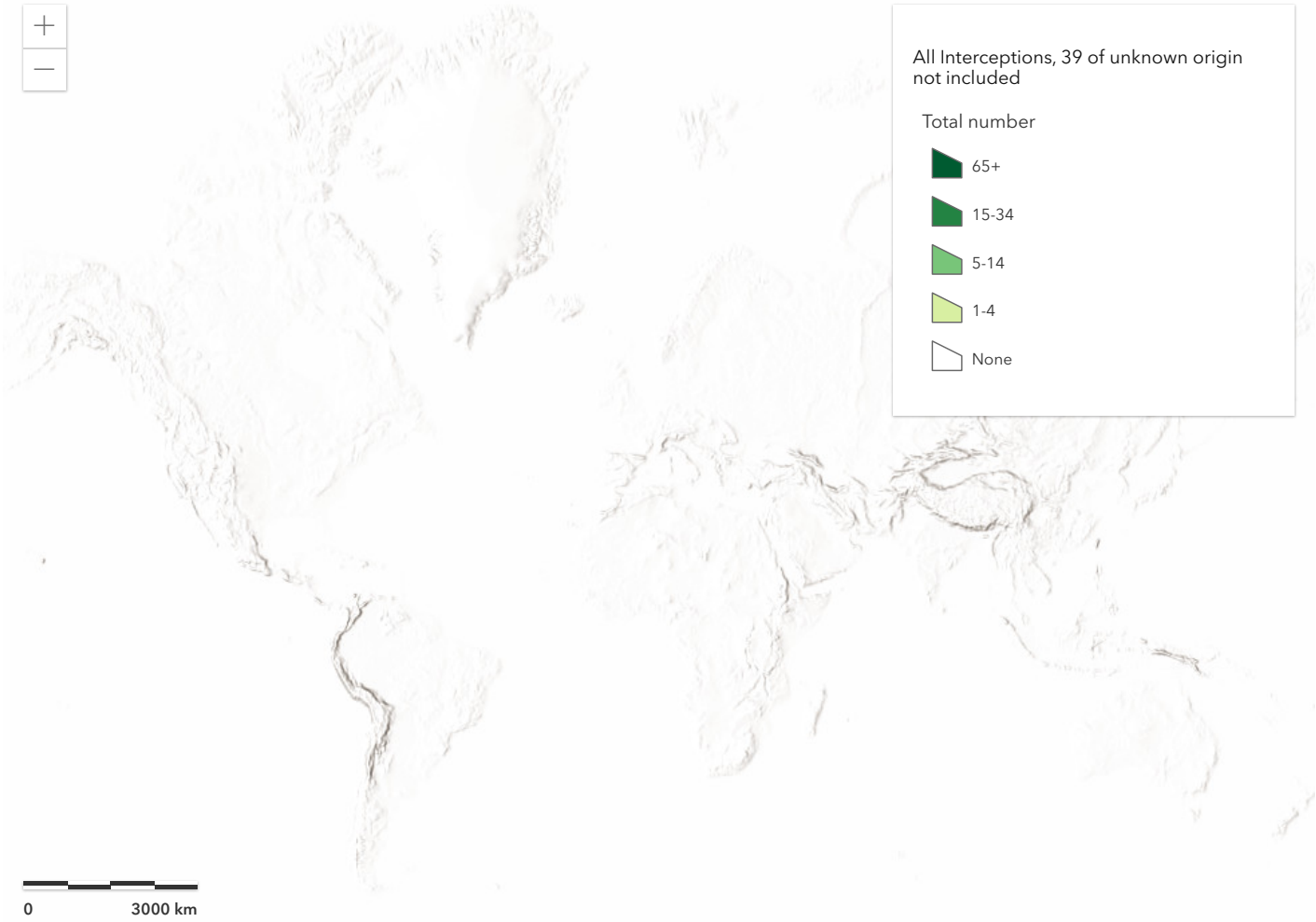
Note: Other includes all seaports other than Auckland, Christchurch (Lyttleton seaport), Wellington or Hutt.
Hutt and Wellington seaports were combined due to reporting methods by NZBiosecure.
For more information see metadata.

Source: NZBioSecure 2022

Interceptions often originate from Asia-Pacific nations, especially Australia

From 2001–2021, the majority of interceptions originated from the Pacific, 108 interceptions, predominantly from Australia, 69 interceptions. Asia was also a common origin of high-risk insects, 96 interceptions. Figure 3 presents the number of interceptions originating from individual countries as well as the mode of travel they were intercepted from.

Figure 3 Border Interceptions by country and mode of transport, 2001-2021



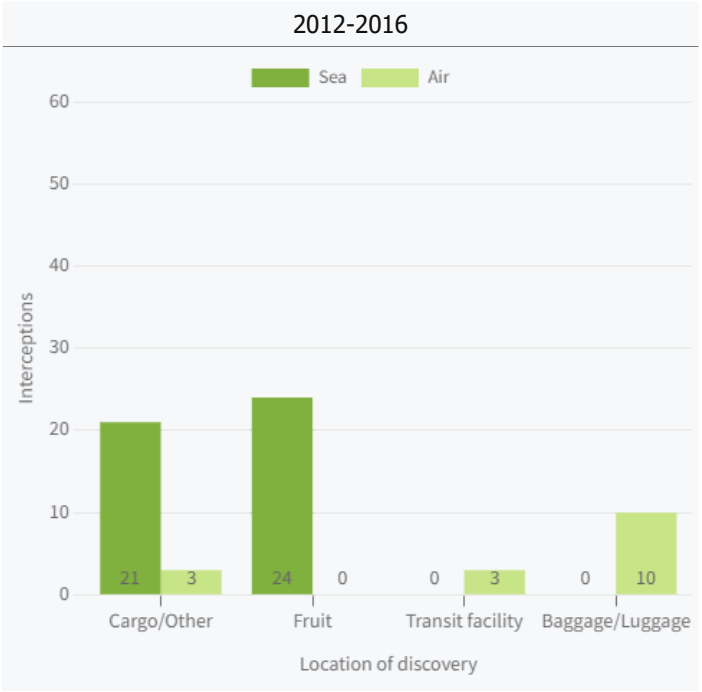
Note: See Metadata for information on how to interpret this map.

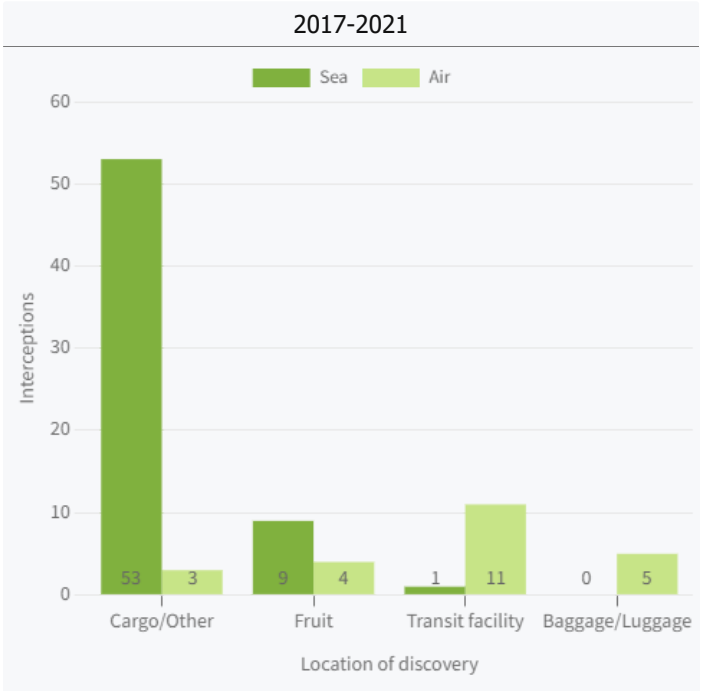
Source: NZBioSecure 2022

High-risk insect modes of entry are shifting

Figures 4 and 5 present the types of cargo high-risk insects were transported in for 2012–2016 and 2017–2021, respectively. In the past, both cargo/other (e.g., household goods, shipping containers—contents not specified) and fruit where the most common locations insects were found when transported by sea and baggage/luggage was the most common source for travel by air. In more recent years, cargo/other was overwhelmingly the most common location by sea and transit facilities were the most common location by air.

Figure 4 High-risk insect interceptions of international origin, by location of discovery and mode of travel.





Data for this indicator

This indicator is an analysis of the most recent data available from the New Zealand BioSecure Entomology Laboratory (NZBioSecure), provided to EHINZ by NZBioSecure in January 2021.

For additional information, see Metadata.

References

Statistics New Zealand (Statistics NZ). 2022a. Infoshare. *Overseas Cargo Statistics: Total imports by New Zealand port. (Annual-Jun).* URL: www.stats.govt.nz (accessed February 2022).

Statistics New Zealand (Statistics NZ). 2022b. Infoshare. *International Travel and Migration: Total passanger movements by NZ port and selected overseas ports. (Annual-Jun).* URL: www.stats.govt.nz (accessed February 2022).

Other related topics include:

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Further information

For descriptive information about the data Metadata Sheet

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