

Information topic	Details
Indicator name	High-risk insects caught at New Zealand's border
Domain and topic	Border Health
Indicator definition and units	Annual frequency of high-risk insects intercepted at New Zealand's border.
Data source	The National Mosquito Surveillance Programme provided by the New Zealand BioSecure Entomology Laboratory.
Numerator	Counts of high-risk insects intercepted at New Zealand ports.
Denominator	NA
Methodology	<ul style="list-style-type: none"> - Data were extracted from the NZBioSecure database for the period, 2001–2023. - Interceptions are classified into four different categories: Unidentified insects, exotic mosquitoes, other mosquitoes and non-mosquito insects. See Appendix 1 for an outline of these classification criteria. - Data extraction included: interception ID, date of interception, origin or transport, Public Health Unit region, address discovered, life stage, insect species, species classification status, origin of insect (if known), further details of interception location (e.g. 'container of melons') and sample ID.
Time period and time scale	<ul style="list-style-type: none"> - Annual; from 2001 onwards. - Seasonal variation in interceptions was not determined due to bi-annual differences in the frequency of sampling in the National Mosquito Surveillance Programme (sampling increases during warmer months). - Time trends: The period from 2001 onwards was examined to determine comparable baseline trends.
Population coverage	NA
Spatial Coverage	National
Measures of frequency	<p>Annual interceptions by:</p> <ul style="list-style-type: none"> - species classification (excluding 'local' interceptions) - PHU region of interception (excluding 'local' and 'potentially local' interceptions) <p>Five-year aggregates of interception data by:</p> <ul style="list-style-type: none"> - Potential country of origin - Living status (alive or dead). - Location of discovery (fruit, tyres, cargo etc).

<p>Limitations of indicator</p>	<ul style="list-style-type: none"> - At present, annual numbers of recorded interceptions of suspected mosquitoes at the border are low which makes temporal trend analysis difficult. - NZBioSecure noted a gradual improvement in programme quality over time which is likely to have created sampling error for statistical analysis over time. However, annual frequency monitoring remains an important indicator, particularly in view of potential future trends.
<p>Limitations of data source</p>	<ul style="list-style-type: none"> - A key limitation is the judgement made by the border surveillance teams as to whether a non-mosquito or exotic mosquito species already introduced in New Zealand travelled from overseas or was from a local source. There is potential for bias in this judgement, although this may have decreased with improvements in surveillance programme quality over time. - This data source only includes suspected mosquito interceptions – other pests intercepted by the Ministry for Primary Industries (MPI) at the border were not included due to limitations with this dataset.
<p>Related indicators</p>	<ul style="list-style-type: none"> - Exotic diseases of concern to New Zealand. - Overseas infectious diseases of priority concern. - Mosquito-borne disease in New Zealand. - Exotic mosquito species established in New Zealand.
<p>For more information</p>	<p>New Zealand BioSecure Entomology Laboratory. Exotic Mosquitos: http://www.smsl.co.nz/NZBEL/Exotic+Mosquitoes.html (accessed September 2024)</p>

Appendix 1: Classification criteria of high-risk insect interceptions

EHI Code	Name	Description (what is it?)	Definition of category
0a	Unidentifiable local	Unidentifiable insects (non-mosquito or mosquito). Specimen originates from NZ.	Species unidentifiable Origin NZ
0b	Unidentifiable exotic	Unidentifiable insects (non-mosquito or mosquito). Specimen originates from outside NZ.	Species unidentifiable Origin NOT NZ
0c	Unidentified undetermined origin	Unidentifiable insects (non-mosquito or mosquito). Specimen possibly originates from NZ or overseas country, or no country of origin listed.	Species unidentifiable Origin NZ & overseas or no origin listed
1	Exotic mosquito	Foreign mosquito species not yet established in NZ. Given this origin must be overseas.	Species any mosquito not established in NZ Origin cannot be NZ
2a	Local mosquito	Native species or foreign mosquitoes established in NZ. Specimen originates from NZ.	Species Native or <i>Culex quinquefasciatus</i> , <i>Aedes notoscriptus</i> , <i>Aedes australis</i> Origin NZ
2b	Exotic established mosquito	Foreign mosquitoes established in NZ Specimen originates from outside of NZ.	Species <i>Culex quinquefasciatus</i> , <i>Aedes notoscriptus</i> , <i>Aedes australis</i> Origin NOT NZ
2c	Mosquito of undetermined origin	Foreign mosquitoes established in NZ. Specimen possibly originates from NZ or overseas country, or no country of origin listed.	Species <i>Culex quinquefasciatus</i> , <i>Aedes notoscriptus</i> , <i>Aedes australis</i> Origin NZ & overseas or no origin listed
3a	Non-mosquito local	These are non-mosquitos. Specimen originates from in NZ	Species any non-mosquito Origin NZ
3b	Non-mosquito exotic	These are non-mosquitos. Specimen originates from outside NZ	Species any non-mosquito Origin NOT NZ
3c	Non-mosquito undetermined origin	These are non-mosquitos. Specimen possibly originates from NZ or overseas country, or no country of origin listed.	Species any non-mosquito Origin NZ & overseas or no origin listed