Te Niwha

Research Project Impact Case Study

Uncovering the risk of a dengue virus incursion from the Pacific: determining the mosquito epidemiological landscape of Aotearoa

Key researchers
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Research activities

This project began in August 2025 and has already established strong foundations for understanding the mosquito virosphere of Aotearoa. As mosquito activity depends on warmer conditions, fieldwork commenced as soon as temperatures allowed. Jessica Darnley, Stephanie Waller, and summer student Kimi Byrne have now completed extensive mosquito sampling, generating a diverse and representative collection essential for downstream analyses. Further field work will be undertaken in January and February 2026.

In the laboratory, RNA extraction protocols have been successfully optimised, enabling high-quality total RNA to be obtained from individual mosquitoes, which is an important milestone for metatranscriptomic sequencing. We are now processing samples at scale in preparation for sequencing.

Impact

Although early in its timeline, the project has already built significant capability, established new workflows, and trained emerging researchers in vector molecular virology. This work will soon yield the first comprehensive insights into mosquito-associated viruses, their ecological drivers, and potential incursion risks, directly supporting Aotearoa's infectious-disease preparedness and biosecurity planning.