Windblown Pests

By Toni Withers

Protecting Aotearoa from Wind-Dispersed Pests is a five-year research programme (Oct 2023–Oct 2028) led by Scion and supported by MBIE. In collaboration with Taranaki Regional Council, Taranaki Mounga, and the University of Canterbury, it aims to strengthen Aotearoa's biosecurity by developing a wind-based warning system to predict when and where insects and pathogens may arrive and spread.

The programme focuses on managing the aerial pathway for pest movement by identifying "airbridges" formed under specific weather conditions. It will modernise wind trajectory modelling, study airflows between land masses like Australia and NZ, and explore how organisms survive long-distance travel in extreme atmospheric conditions.

Wind has brought several invasive pests to NZ—including myrtle rust and fall armyworm—with no current tools to manage this pathway. With climate change potentially increasing the risk, this project addresses a critical biosecurity gap.

At a recent "Meet the Scientists" event in Taranaki, engagement reached new heights as 150 tamariki from six schools explored the world of moths through hands-on activities. Entomology Senior Technician Mike Davy used laser-cut wooden moths, live specimens, and art to teach kids the difference between native and exotic species.

"My goal was to help kids connect with moths. Moths are often considered distasteful or overlooked but vital to ecosystems"

- Mike Davy

Children were encouraged to become citizen scientists by photographing moths and uploading sightings to iNaturalist, contributing to national biodiversity data.

Scion scientists Toni Withers, Taiāwhio Bryers, Dagmar Cheeseman, and Selwyn Insley also led activities such as butterfly catching, inspiring curiosity and environmental stewardship among the tamariki.

The project could save NZ up to NZ$1.25 billion by preventing the establishment of just one major pest, through avoided losses in forestry, horticulture, and biodiversity.

The warning system will run in both hindcast and forecast modes to support surveillance before and after pest arrivals, and to model spread within NZ.

By bridging key knowledge gaps, this programme strengthens our defences against pests arriving on the wind from the Asia-Pacific region.