



Landcare Research  
Manaaki Whenua

# The International effort on biological control of tutsan (*Hypericum androsaemum*) in New Zealand

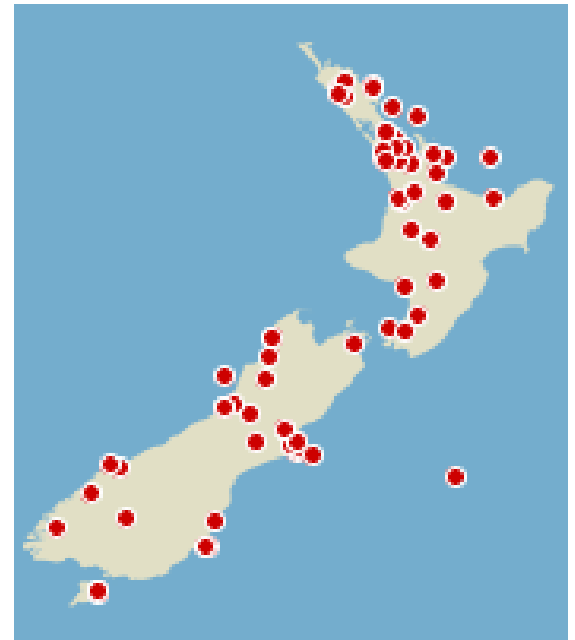
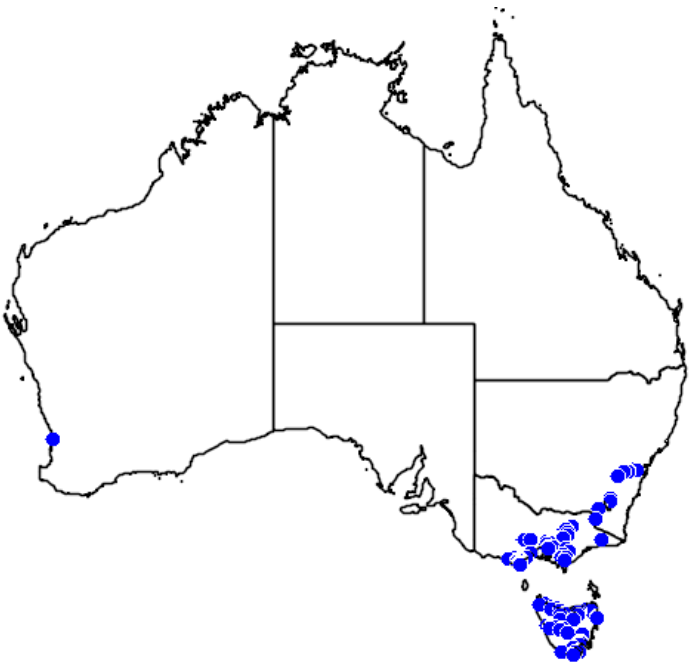
Hugh Gourlay<sup>1</sup>, E. Rendell, E. Olsen, R. Groenteman, C. Probst, M. Padamsee, S. Bellgard, D. Goeke,



Tutsan, *Hypericum androsaemum*.

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the Ministry for Primary Industry, Sustainable Farming Fund and the  
Tutsan Action Group.





## Historical background in New Zealand and Australia



# *Melampsora hypericorum*



# The Emerging Problem in New Zealand



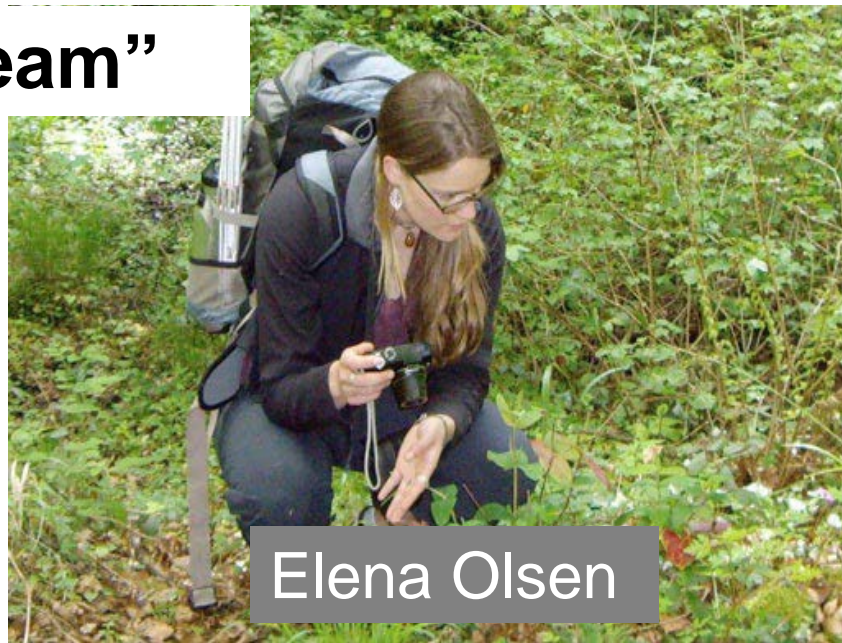
# Environmental and Economic Impacts



# The "Team"



Chantal Morin



Elena Olsen

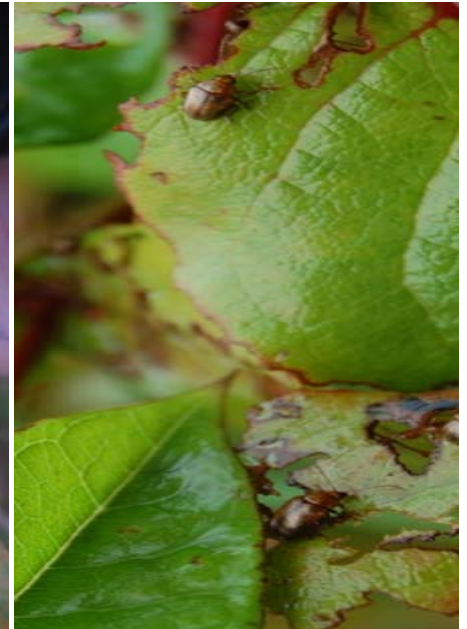


TAG members



Elizabeth Rendell

# New Zealand surveys



# European biocontrol agent surveys



***Chrysolina varians***



***Lathronympha strigana***



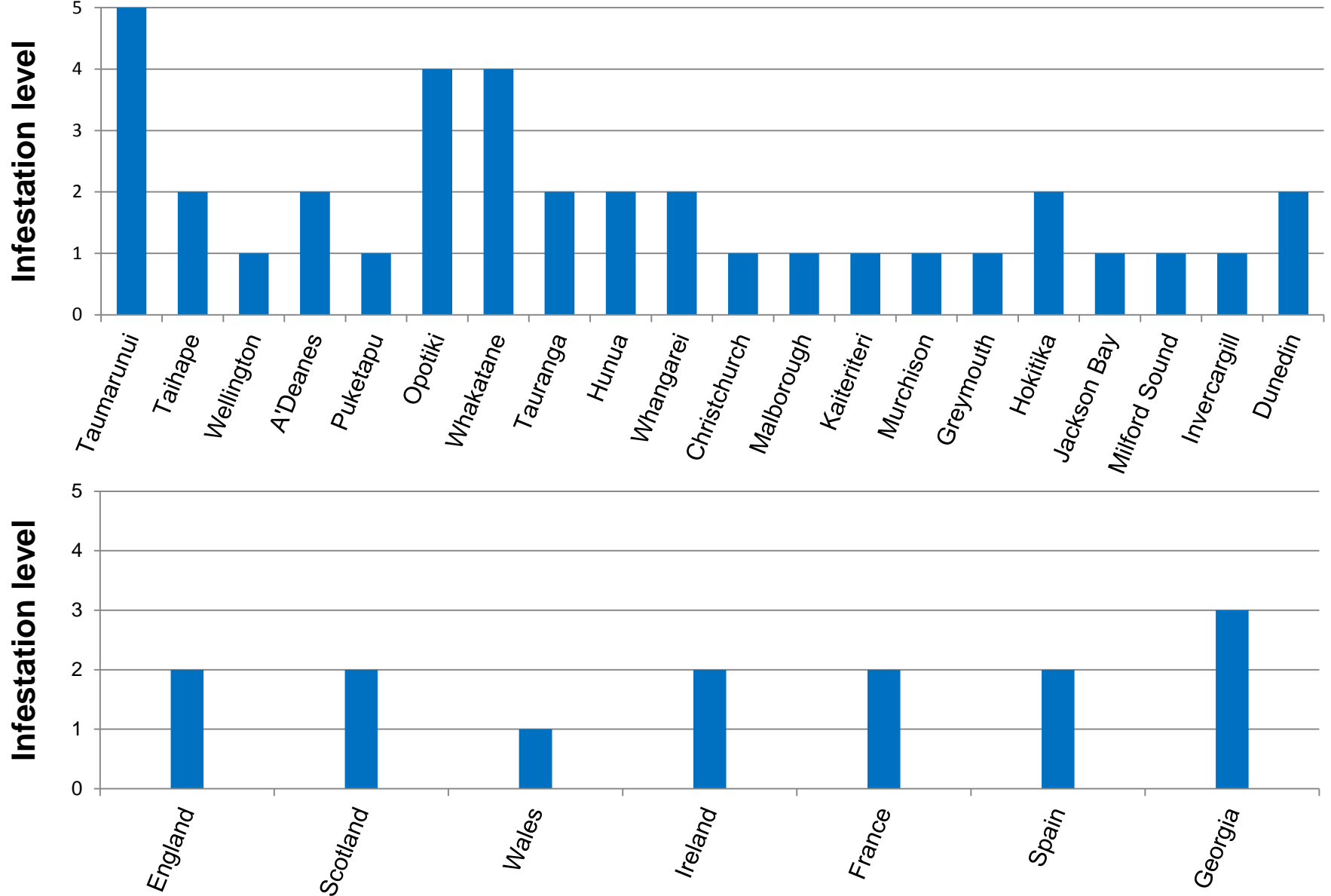
***Chrysolina abchasica***



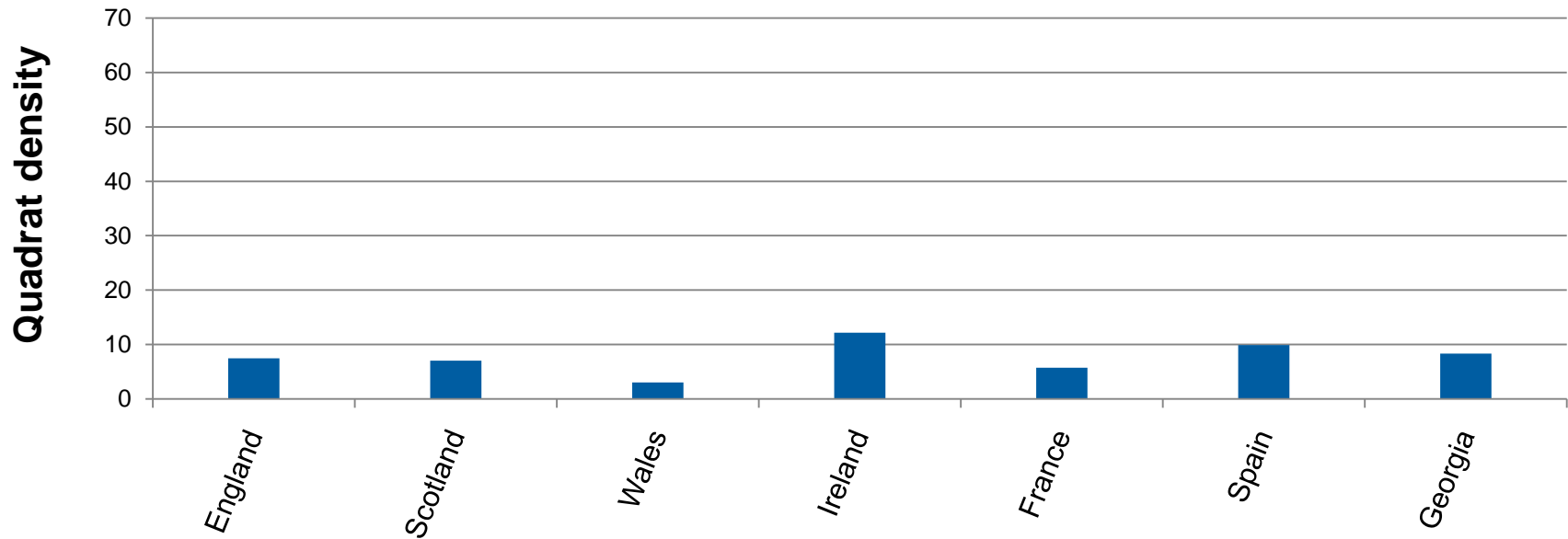
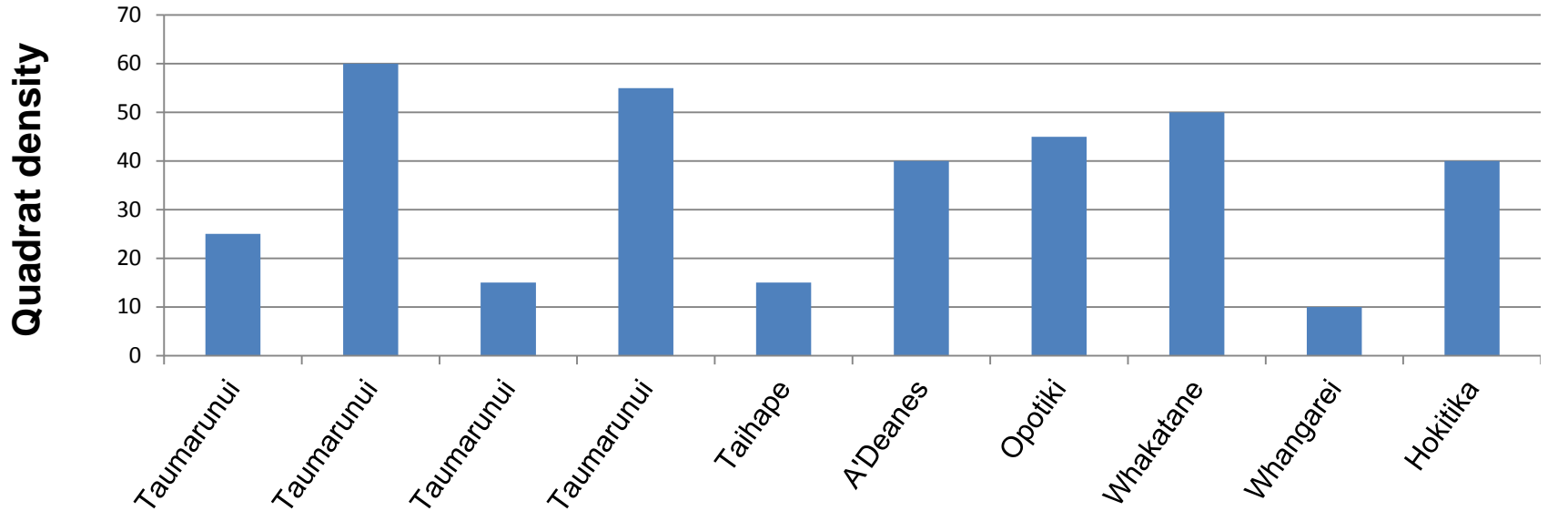
***Chrysolina brunsvicensis***



# Scored infestation levels of tutsan in New Zealand and Europe

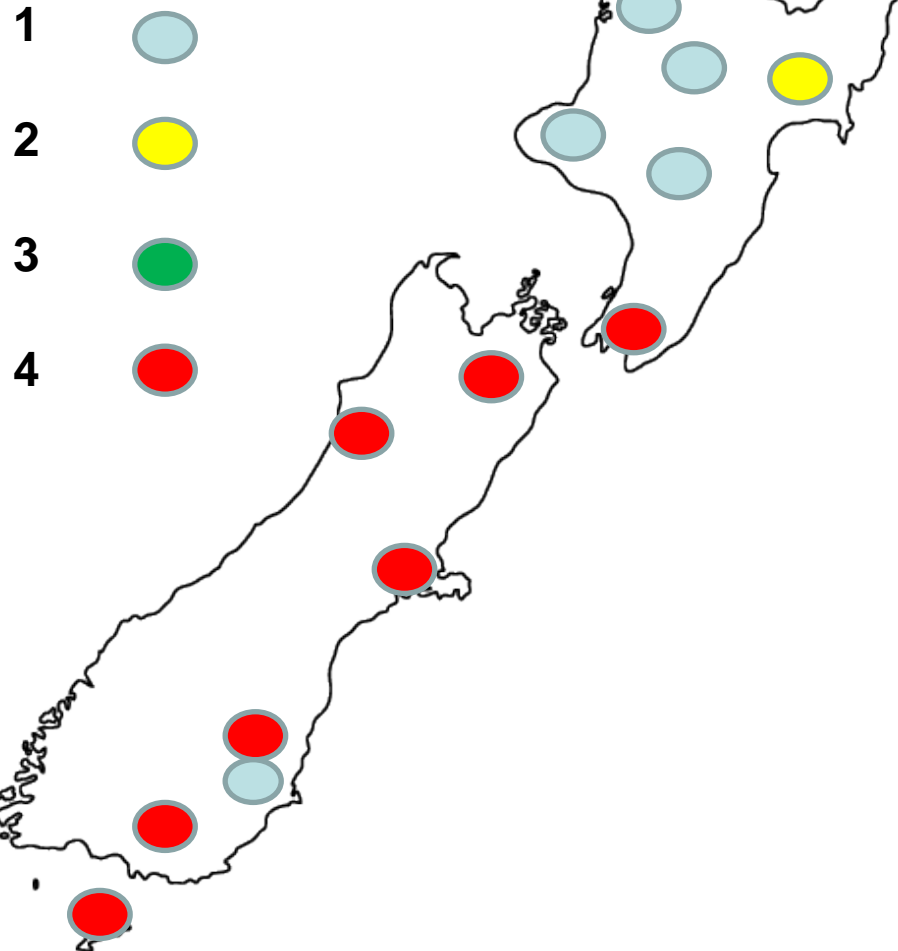


# Quadrat density of tutsan plants in New Zealand and Europe

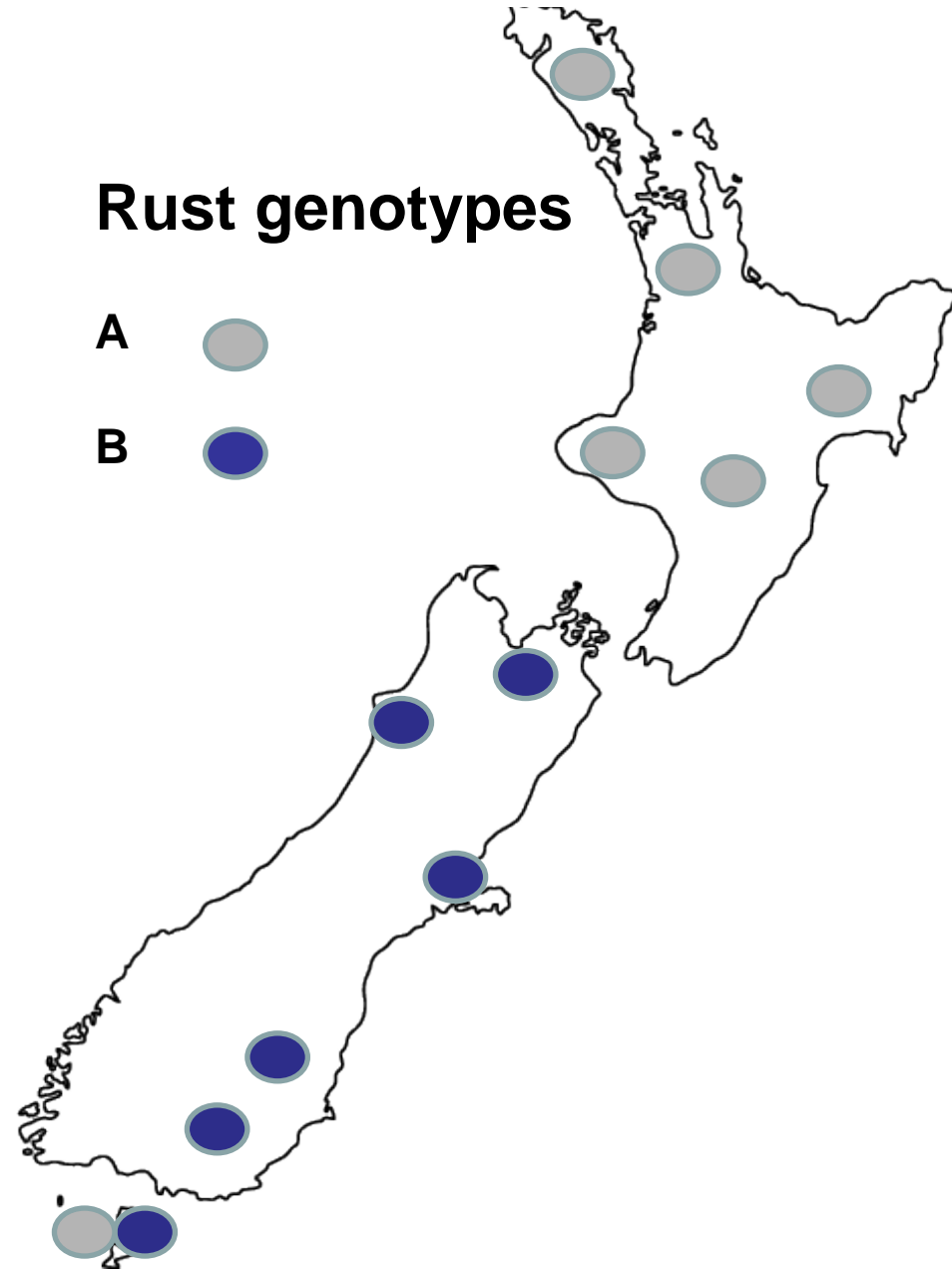


# Tutsan plant and rust DNA genotypes and locations in New Zealand

## Plant genotypes



## Rust genotypes





# European survey results of tutsan rust types and their locations.

