

## **When substrate matters; drivers of assemblages and interspecific relationships in tussock grasslands spiders**

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Vegetation, which has flippantly been referred to as “only substrate” by some arachnologists, is known to determine arthropod diversity and composition in various ecosystems. Here we present the first study that investigates the effects of the physical and botanical characteristics of native tussock vegetation on spider assemblages. We address two questions: (1) What are the effects of the physical characteristics and species composition of vegetation on spider communities? (2) What are the associations between spider assemblages and plant communities? We found that although there was a positive relationship between plant and spider diversity, the effects of tussock cover varied depending on the spider families or species. Overall, the physical structure and species composition of the vegetation had a similar effect on spider assemblages, with approximately the same number of taxa affected by either characteristic. Gradients in vegetation were matched to gradients in spider communities, whose diversity and composition varied. Species of the family Orsolobidae were associated with wetland vegetation, and Linyphiidae (money spiders) species with shrubs. After confirmation of relationships by individual variables, it was concluded that environmental factors, such as soil moisture, may affect plant composition and structure in tussock ecosystems, which in turn determine spider assemblages. Lycosidae (wolf spiders), as a group, and two species of this family were consistently affected by vegetation. These taxa deserve further research as they can provide information on plant structure and potentially be used as indicators of ecological processes in tussock grasslands and become valuable for monitoring environmental changes in conservation management.

