

TRADESCANTIA OR NATIVE GROUND COVER. WHICH HABITAT DOES THE NEW ZEALAND NATIVE WĒTĀ PREFER?

INTRODUCTION

Tradescantia fluminensis is an invasive weed that spreads quickly along rivers and damp areas in native forest. As soon as *Tradescantia* was introduced to New Zealand, it began to compete with native species' for resources such as food, space, sunlight, etc. in order to survive. It builds up into a thick mat that prevents native seedlings from growing and the forest regenerating. *Tradescantia* forms the predominant ground cover along the Wairoa Stream Track. Weeding the *Tradescantia* has been proposed, however an iconic New Zealand native invertebrate, the wētā (*Neonetus sp.*), has been found living in the *Tradescantia*. The removal of *Tradescantia* will allow the subsequent growth of native seedlings, however concerns have been raised about the effect this will have on the wētā found living there.

AIM

To find out how the type of ground cover (*Tradescantia* compared to native ground cover) significantly affects the number of wētā found in these environments.

HYPOTHESIS

We hypothesised that significantly more wētā would be found living in native ground covered habitats than in *Tradescantia*. This is because the wētā which is indigenous to New Zealand would have lived in native ground cover before the introduction of *Tradescantia* and as a result would have adaptations that best allow it to survive in this environment.



Image of Cave Wētā (*Neonetus*)

DATA COLLECTION

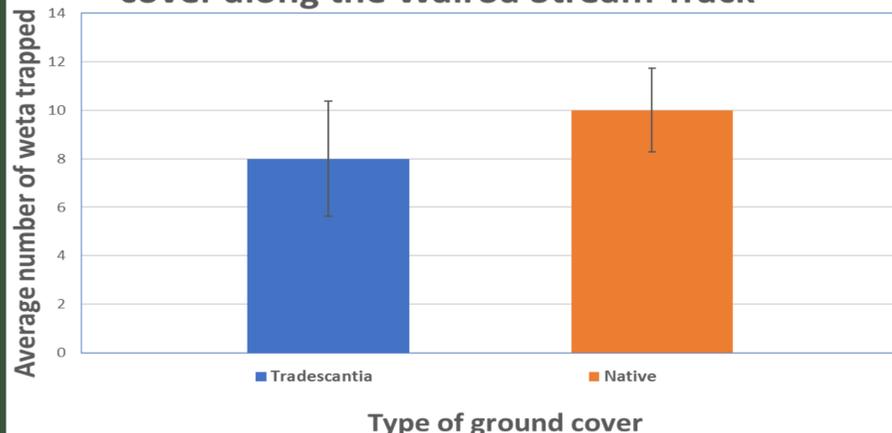
A 100m section along the Wairoa Stream Track was selected where one side of the track had 100% ground cover of *Tradescantia*, and the other side of the track had 100% native ground cover. Four trials were randomly placed on each side of the track. Each trial was made up of five pitfall traps arranged in a 5x5 metre square with a trap at each corner, and one trap in the middle of the square. After 2 weeks each pitfall trap was emptied and the wētā that had been caught were counted and sexed in each trap and the number summed for each trial. The four trials were then averaged.



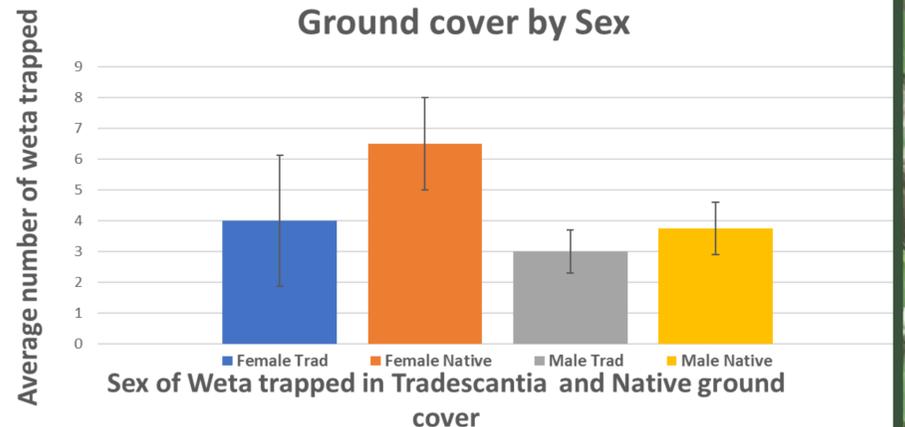
Image of pitfall trap used to trap the weta

RESULTS

Average number of weta in *Tradescantia* ground cover compared to Native ground cover along the Wairoa Stream Track



Number of Weta in *Tradescantia* and Native Ground cover by Sex



At first glance it appears that the average number of wētā trapped in the native ground cover is larger than the number trapped in the *Tradescantia*. However, the overlap of the standard error bars indicate that this difference may not be significant. We tested the averages using Anova. At alpha 0.05 Our f value of 0.461538 is less than the f critical which is 5.987378. Therefore, we can be 95% confident that there is no significant difference between the numbers of wētā found in the *Tradescantia* compared to the native ground cover.

There is no significant difference (95% confidence) between the number of female wētā trapped in native ground cover when compared to the females living in the *Tradescantia* this is indicated by the overlap of the standard error bars. An Anova test, alpha number 0.05 confirmed this as the f value 1.15665 is less than the f critical 3.490294819. This is also true for the male wētā as the f value is 0.925926 this is less than the f critical of 5.987378.

CONCLUSION

Our results show that there is no statistically significant difference between the number of wētā found in *Tradescantia* when compared to Native ground cover. This was also true when we analysed the data in terms of male and female wētā. These results proved our hypothesis to be incorrect, we thought that more wētā would be present in native ground cover. Statistically we can be 95% confident that there is no difference in the number of wētā trapped in the *Tradescantia* ground cover compared to the average number trapped in native ground cover.

RECOMMENDATIONS & IMPLICATIONS

It is recommended that the *Tradescantia* should be removed. Removing the *Tradescantia* quickly would expose the ground and possibly take away the weta's food source and cover from predators. This effect is not anticipated to be long term as once the native ground cover re-establishes other wētā from nearby areas with native ground cover may repopulate the area where the *Tradescantia* was removed. We therefore can be confident that, in the case of the Wairoa Stream Track, that while initially the current wētā living in the *Tradescantia* will be affected by the manual removal of their habitat, that wētā will repopulate the cleared areas when native cover is re-established because there exists in close proximity wētā populations in the native ground cover. There is the possibility that the wētā may prefer a particular ground cover during part of their life cycle, for example egg laying. It is recommended that the two sites are sampled at different times of the year to see if *Tradescantia* is used seasonally or intermittently by the wētā.

