

Microhabitat preferences of acariform and parasitiform mites in the organic matter layer of beech forest

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Mites are the most abundant arthropods in the soil system and play key roles in the delivery of ecosystem services, such as nutrient cycling and decomposition. It has also been suggested mites are indicators of ecosystem health and disturbance, yet despite this their ecology is poorly understood and they are under-represented in ecological studies worldwide. This aim of this study was to contribute to a baseline understanding of mite communities in the organic matter layer of beech forest at Boyle River, Lewis Pass, New Zealand. The organic matter was sampled from three sites and mites were extracted using Tullgren funnels. The extracted mites were sampled daily for 10 days. We compared the abundance of the two superorders, Acariformes and Parasitiformes, at two depths of the organic matter layer: the surface leaf layer and the root layer below. We determined the time needed for extraction of an adequate sample of mites from the litter and trialed a field-of-view method to estimate the abundance of mites found in the samples. Both mite taxon and the depth of the organic matter layer were important factors for explaining mite abundance with greater abundance of mites in the root layer and more acariforms than parasitiforms across all layers. The time needed for adequate extraction was different for the two litter depths; the root layer needed seven days to complete the extraction, compared to three for the leaf layer. Future research will focus on testing the methods trialed in this study and their utility for characterizing mite communities at taxonomic levels below superorder.