

## What habitat does spiny snout mite occupy in Tasmania?

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Spiny snout mite (*Neomolgus capillatus*) is a potential biocontrol agent for clover flea (*Sminthurus viridis*), a white clover pest on dairy farms in warmer and wetter parts of New Zealand. In the 1990s, this mite was introduced from Brittany, France, into Tasmania for clover flea control. Results during the release programme were highly promising and subsequent anecdotal farmer reports indicate widespread decreases in damage. As *N. capillatus* is a predatory mite and already known to attack non-target organisms, habitat specificity will determine whether it could be introduced into New Zealand without risk to native insects. To assess this, pastures on nine of the original Tasmanian release farms and adjacent non-target habitats, ranging from bush, wetlands, eucalypt stands to sand dune country, were sampled in April 2014. Litter samples were collected, heat extracted and mite species identified. *Neomolgus capillatus* was found at effective densities in pastures that had good clover cover. Where present, it displaced *Bdellodes* spp., mites that are ineffective against clover flea. No *N. capillatus* were found in the non-target habitats, all of which lacked clover and contained other predatory mites, including *Bdellodes* spp. Therefore the preference by *N. capillatus* for lush pastures makes it an excellent prospect for introduction as a biocontrol agent into clover flea prone regions of New Zealand.

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## An investigation of San Jose scale (*Quadraspidiotus perniciosus*) predation by the European earwig (*Forficula auricularia*)

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The European earwig (*Forficula auricularia*) is a generalist predator of a wide range of insect pests in pipfruit orchards, including scale insects. Since the development of an integrated fruit production programme that uses selective pesticides and biological control of pests, earwigs are now more frequently found in commercial pipfruit orchards. San José scale (*Quadraspidiotus perniciosus*, SJS) is a diaspid species that is an important insect pest in the main apple-growing regions in New Zealand. This study investigated the potential of earwigs to feed on SJS in a non-choice laboratory trial. Individual mature earwigs were placed inside containers with small sections of apple wood infested with mixed age stages of SJS. A total of 157 SJS on the apple wood were photographically identified and marked so that subsequent predation by earwigs over 6 nights could be recorded. Predation over this period was 12-90% (mean 56%). These results indicated that earwigs would potentially feed on scale insects, but as they are generalist predators their impact on scale infestations in orchards would depend on scale density and the availability of other prey. Very little earwig predation of SJS on fruit was recorded in a similar assessment.