

Abundance and ecological impact of Australian redback spiders (*Latrodectus hasseltii*) in the Cromwell Chafer Beetle Nature Reserve

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Eligible for student prize

Australian redback spiders (*Latrodectus hasseltii*) are an internationally invasive species that pose a threat to human health and the survival of native species in New Zealand. They were initially recorded in Central Otago, South Island, in 1981 and have since established populations there and in New Plymouth in the North Island. In 2012, multiple incidences of predation of Cromwell chafer beetles (*Prondontria lewisii*) by redback spiders were observed within the Cromwell Chafer Beetle Nature Reserve. This raised concern over the impact the spiders were having on the Cromwell chafer beetle population, which is already threatened by limited distribution and degradation of habitat. This study was designed to investigate the abundance of redback spiders within the reserve and the impact they were having on the reserve community. Strip transects were run the length of the reserve to attain an initial population estimate. Half of the identified webs were monitored for five weeks for prey, occupants and condition, before strip transects were repeated to gauge how the distribution and abundance of the population had changed. Forty corrugated iron artificial cover objects were also placed 25 m from the reserve perimeter to sample the redback spider population beyond reserve boundaries. Redback spiders were recorded preying on 27 species in total; nine of which were native. The latter included over 340 Cromwell chafer beetles. Five sub-adult McCann's skinks (*Oligosoma maccanni*) were also found in webs, which is the first recorded predation of skinks by redback spiders in New Zealand. Evidence of prey storing behaviour was displayed by adult female spiders with egg sacs and corrugated iron artificial cover objects were shown to be effective for sampling redback spider presence. The potential for a biological control for redback spiders by using virgin female pheromones to attract males is discussed.

