



Global Re-introduction Perspectives: 2010

Additional case-studies from around the globe
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IUCN/SSC Re-introduction Specialist Group (RSG)





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Re-introduction of the Banks Peninsula tree weta to Quail Island, Banks Peninsula, Canterbury, New Zealand

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Introduction

The Banks Peninsula tree weta (*Hemideina ricta*) are only found on the eastern parts of Banks Peninsula, Canterbury, New Zealand. The weta are the rarest tree weta in New Zealand and is classified by the Department of Conservation as threatened/at risk due to a range restricted distribution (Hitchmough *et al.*, 2005). The Quail Island Ecological Restoration Trust in partnership with Department of Conservation and Te Hapu o Ngāti Wheke of Rāpaki are restoring the indigenous vegetation and fauna on the island (Burrows *et al.*, 1999) and provide refuge for locally extinct or rare and endangered species of the Banks Peninsula region. Quail Island (85 ha) is located in Lyttelton Harbour (S 43.62905°, E 172.6876°) which links the mainland via mudflats at low tide. Introduced mammalian pests, mice, rats, hedgehogs, cats and possums have been eradicated, and 90% of the mustelids (stoats, weasels and ferrets) are trapped en route to Quail Island (Bowie *et al.*, 2003). The close proximity to the mainland and the open access to public, makes this island vulnerable to reinvasion by pests, so traps and bait stations are needed to protect the island.

Goals

- Goal 1: Identification of healthy re-introduction source close to Quail Island.
- Goal 2: Development of artificial habitat and non-destructive sampling technique.
- Goal 3: Testing of translocation/restoration technique (weta motels).
- Goal 4: Annual monitoring of weta population at release site.
- Goal 5: Double release population in four years.



Tree weta's inside a "weta motel"

Success Indicators

- Indicator 1: Ten percent of translocated weta numbers within one generation (two years) and 20% within two generations (four years).
- Indicator 2: Dispersal of populations to other suitable habitat on Quail Island.

Project Summary

Banks Peninsula tree weta (*Hemideina ricta*) are nocturnal cricket-like orthopterans and live in holes, cracks and crevices of mature trees or in rock stacks usually above 400 m in altitude (Townsend *et al.*, 1997). Adult males often have harems of females that they guard against other males for the right to mate (Field & Jarman, 2001). Quail Island is in the early stage of ecological restoration (Burrows *et al.*, 1999) and contained no mature native trees suitable for weta refuges, so artificial refuges were developed using a simple technique that also served as a convenient way to monitor weta numbers. Weta motels (Bowie *et al.*, 2006), hollowed-out blocks of wood with a narrow entrance to exclude predators such as rodents were tied to tree trunks to provide safe, dark refuges for the weta. Weta motels are untreated wooden refuges containing an entrance hole (14 mm diameter) to exclude mice and a dark chamber for up to three adult tree weta (Bowie *et al.*, 2006 & Bowie, 2008).

In November 2004 approximately 50 empty weta motels were placed on trees or fence posts at four locations on eastern Banks Peninsula where *H. ricta* were known to exist. Three days prior to the translocation, weta motels were checked for the presence of adult *H. ricta*. Weta motels with weta inside were removed and corks placed in holes to keep weta contained. Where possible weta were kept in the motels they were found in as it was thought that the presence of their own odours would reduce stress and motel abandonment that may follow. Corks were removed and motels were placed in 2 litre ice-cream containers containing some native vegetation (e.g. *Coprosma robusta*) and a small piece of carrot. On 24th January 2005 weta motels containing 14 male and 14 female Banks Peninsula tree weta were translocated to Quail Island. Motels containing weta were attached to mature kanuka trees. A male and a female weta usually in separate motels were attached to the same tree in order to pair them up to maximise mating success. As refuge for immature weta, concrete blocks with holes were stuffed with bamboo canes and placed at the base of the trees. Twelve weta and three weta were observed in the motels seven months and 18 months after the translocation respectively. Four years after the translocation, when all the original translocated weta had died from old age, five live adult weta were found in the motels.

Major difficulties faced

- Identification of the tree weta species from the common Canterbury tree weta (*Hemideina femorata*) was difficult as the most reliable method requires counting stridulatory ridges between the rear legs and the body.
- Marking the weta to be able to identify them later as sub-adults shed their exoskeleton and marks with it.
- Predation by mice was a concern so we put mouse traps around the release site to enhance weta establishment.

Major lessons learned

- Testing restoration techniques prior to translocation also proved to be useful for specimen collection.
- Quick transfer between collection and translocation is important to minimize stress in weta.
- Important to keep weta in same motel they were collected in to maximize motel fidelity for survival and monitoring.

Success of project

Highly Successful	Successful	Partially Successful	Failure
	√		

Reason(s) for success/failure:

- Next generation of weta were found in motels after three years.
- Simplicity of the translocation and monitoring method.
- Snap traps were used around weta site to keep house mouse (*Mus musculus*) densities low.

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