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On the distribution of tree weta in the North Island, New Zealand.

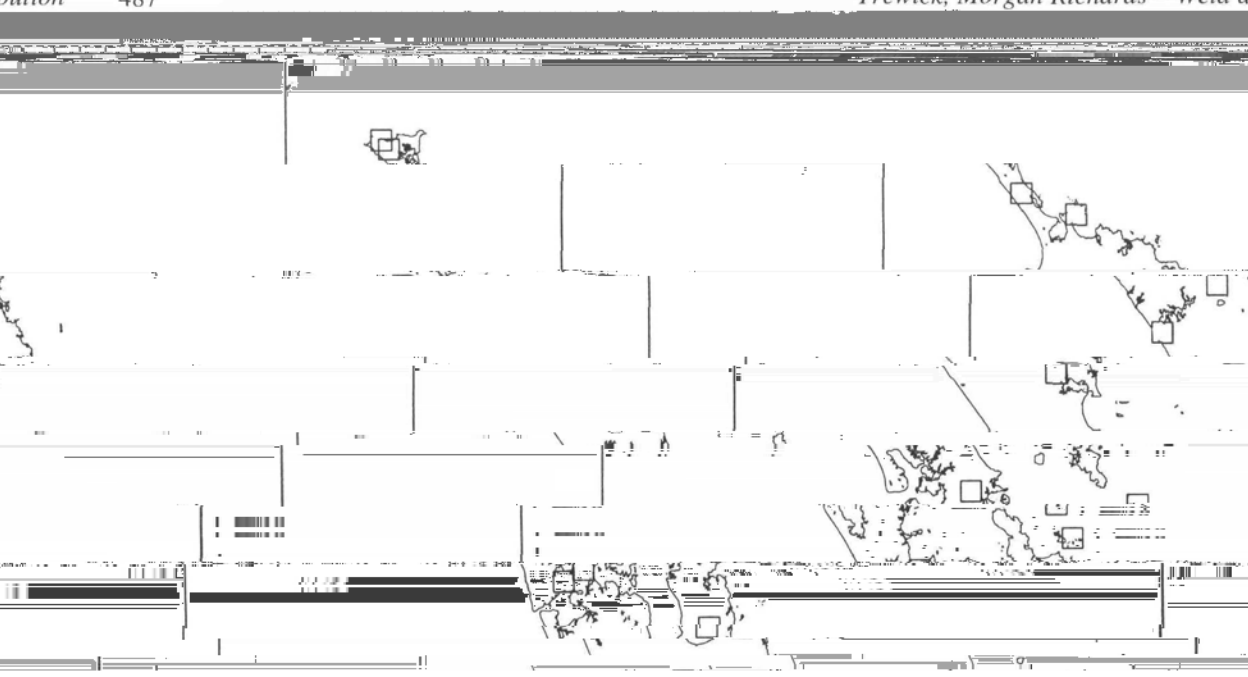
Steven A. Trewick* & Mary Morgan-Richards*‡

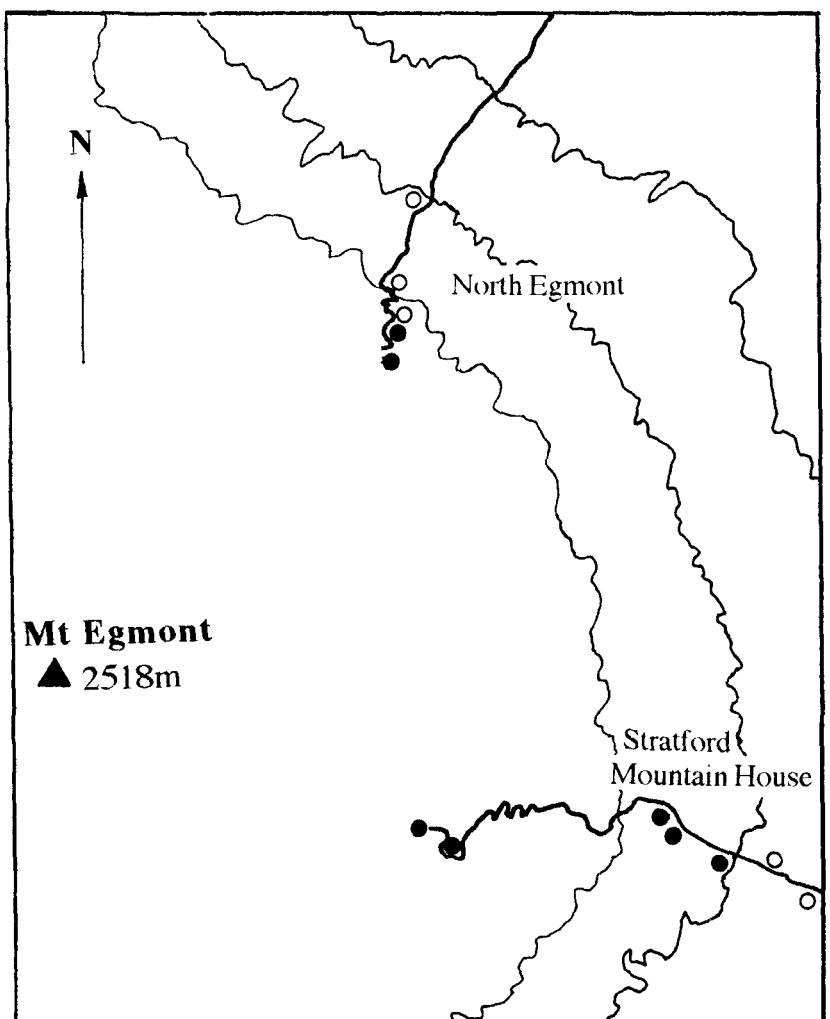
The distribution in the North Island of the two species of tree weta (*Hemideina thoracica*

which the two dominant species meet, according to Meads (1990). We examined several individuals at each site and took care to locate these in a number of different trees and branches in order to increase the chances of finding individuals of both species, if present. In addition, we examined preserved specimens held at the Museum of New Zealand Te Papa Tongarewa, Wellington. Specimens with suitable data were included on the distribution maps, although most recorded sites were revisited during this survey. Grid references were taken from McKenzie (1987) and altitudes from maps in the Department of Survey and Land Information Parkmap series. Some specimens of weta were collected at sites that were new locations for a species. These were preserved and will be lodged at the Museum of New Zealand Te Papa Tongarewa.

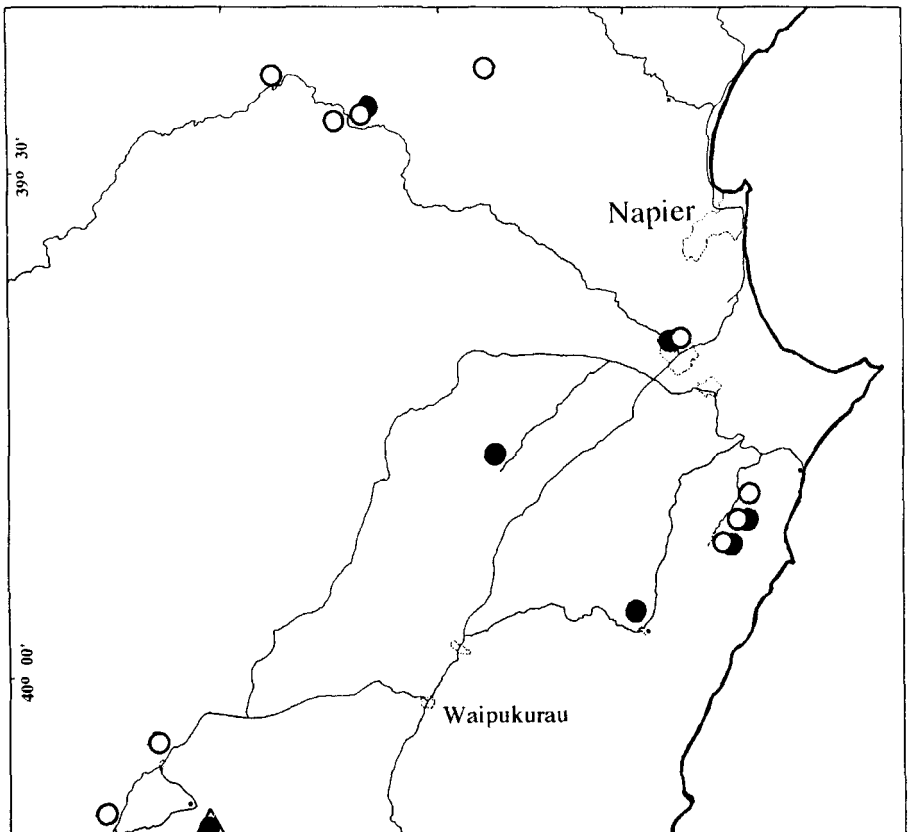
RESULTS

Figure 1 shows a distribution map for the three species in the North Island of New Zealand. Of particular interest is the approximate boundary zone of *H. crassidens* and *H. thoracica* and the local discontinuities along it. Most sites with suitable habitat that were searched contained weta, although density of individuals varied considerably among sites. At almost all sites only a single species of tree weta was found. *H. crassidens* was located further north than previously documented by Meads (1990), with outlying populations in Taranaki, Ruapehu,





H. crassidens and *H. thoracica* were found in close proximity, and may be sympatric. The extent of this area of overlap is not clear and the apparent sympatry may be the result of marginal overlap of the two species amidst a mosaic of parapatric patches.


39° 30'
40° 00'
Napier
Waipukurau

recent dispersal of tree weta, and the presence of *H. thoracica* amidst *H. crassidens* near Levin may be evidence of this. The effects of changes in the scale and type of predation on

birds survive and possums and rats are controlled.

Parapatry vs sympatry

recent connection between the two islands bridging the modern Cook Strait, as described by Fleming (1962), Stevens & Suggate (1978), and Lewis, Carter & Davey (1994), could have provided the opportunity for *H. crassidens* to migrate into the South Island.

Geophysical evidence suggests that during the late Miocene a continuous land mass ran through what is today the North and South islands. There were islands in the southern

years b.p.) (Fleming 1962; Stevens & Suggate 1987), although it is not clear whether these islands emerged from the sea or were derived from early Miocene links with the main north/south land block (Fleming 1962). It is also probable that these islands persisted through time,

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Karny, H. H. 1934: Die gryllacriden des Pariser Museums und der collection L. Chopard. *Eos 10*: 293–393.

Lewis, K. B.; Carter, L.; Davey, F. J. 1994: The opening of Cook Strait: Interglacial tidal scour and