Ecology and behaviour of the Mahoenui Giant weta

(*Deinacrida* nov. sp.)

A thesis presented in partial fulfilment of the requirements for the degree of Masterate of Science in Ecology at Massey University.

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Plate 1 A female Mahoenui weta displaying the threat posture

ABSTRACT

Basic information about the ecology of Mahoenui weta (*Deinacrida* nov. sp.) is provided from captive and field studies. Transmitters, betalights and capture-recapture were used to track movements and activity. Weta have a three year lifecycle with three main age groups present thoughout the year. Two colour morphs were present (brown and yellow); 15% of males and 27% of females were yellow morph. Mortality rate decreased with age; 80% died between instars 1 and 6, 40% died between instars 7 - 9. Mild overt agonistic behaviour was observed. Courtship behaviour was simple and females played a passive role. Mating took from 1 to 14 hours and often included multiple copulations. Weta were more active in summer than winter and adults were active for longer periods than juveniles. Activity patterns in captivity were similar to those in the field. Most weta remained within a small area (1 - 3 m^3) for much of their lives and often returned to rest in the same place on successive days. Large gorse (*Ulex europaeus*) bushes with little or no goat browsing were preferred whereas isolated bushes and small and heavily browsed gorse was less favoured. Weta are generalist feeders. Those reared on gorse and pasture plants had low mortality (1 died out of 9) and gained weight more steadily than weta reared on native vegetation (9 died out of 11). Mahoenui reserve provides suitable food and shelter and affords some protection against predators. However the possible destruction of the gorse habitat by fire or disease still poses a major threat to the weta population.

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