Distribution and ecology of the Banks Peninsula Tree Weta, *Hemideina ricta.*

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Adult male *Hemideina ricta* on tree stump, Fishermans Bay, Banks Peninsula.

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Abstract

Comparative morphology. *Hemideina ricta* and *H. femorata* were assessed for their morphological similarity. *H. ricta* adults were found to have significantly longer and wider heads in both sexes and longer cerci in adult males. The tibial length of adult female *H. femorata* was significantly longer than in *H. ricta*. Thorax width, thorax length and ovipositor length did not differ significantly between the two species.

Habitat and distribution. *H. ricta* and *H. femorata* are predominantly allopatric on Banks Peninsula, with *H. ricta* being found on the outer eastern portion of Banks Peninsula and on the inner Akaroa Harbour while *H. femorata* is located on the inner Akaroa Harbour and westward from here. The two species overlapped altitudinally, but *H. femorata* was not found above 450 m asl whereas *H. ricta* was discovered from 20 m to 806 m asl. *H. femorata* showed a strong preference for kanuka habitat whilst *H. ricta* had a broader preference for kanuka, mixed broadleaved hardwoods, fallen totara and broadleaf logs and old fenceposts.

Refuge occupation. The refuges where *H. ricta* and *H. femorata* rested during the day were assessed for their similarity. Both species preferred galleries formed by beetle larvae as these probably offered the greatest protection from predators. Weta were also found in splits, under the bark of trees, in rotten logs and in the forks of trees. Significantly more galleries were occupied by *H. ricta* adults, compared to juveniles, that occupied areas under bark and in splits. There was no significant difference in the refuges occupied by adult and juvenile *H. femorata*.

Behaviour. The nocturnal behaviour of *H. ricta* in captivity and in the field was investigated. Their activity in captivity was significantly greater. *H. ricta* were observed moulting, ovipositing, mating and fighting in captivity whereas in the field none or only a few of these activities were recorded. *H. ricta* in captivity also spent more time perching on logs and foliage compared to field situations. It is probable that temperature influenced this result because *H. ricta* showed elevated activity and a greater variety of activity with increased temperature in the field.

Feeding preferences. The comparative feeding preferences of *H. ricta* and *H. femorata* were assessed on five commonly located mixed broadleaved hardwood tree species. *H. ricta* and *H. femorata* consumed significantly different amounts of the selected plants as did juvenile and adult weta. More *Parsonsia* was eaten by *H. ricta* and more *Pittosporum* was eaten by *H. femorata.* In addition, significantly more *Parsonsia* was consumed by adult male *H. ricta* compared to juvenile males. There was no significant difference between preferred plant between the sexes.

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