

Ship and Norway rats in urban and pastoral landscapes

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There is increasing interest in small mammal pest ecology outside forest and other wild environments, as restoration effort grows in urban and pastoral landscapes, although urban rats have always been targeted for public health reasons. We review the sparse, scattered literature and current research about ship (*Rattus rattus*) and Norway (*R. norvegicus*) rats in towns and cities, and on farms, and in forest fragments. Both species are widespread, but the ship rat seems to be more common in studies done so far. Norway rats have received very little study on the New Zealand mainland at all. They are most common near water; they are good swimmers, but whether this allows them better access to aquatic food or escape from predators is unknown. Their abundance and distribution is apparently constrained by competition with the more arboreal ship rats. However, no-one has reported Norway rats increasing after ship rat (or predator eg cat and stoat) control. Ship rats are apparently at home in pastoral landscapes because they readily reinvade forest fragments after eradication, but their ecology outside the fragments has never been studied. Urban and farm rats do not seem to have irruptive populations, perhaps because there is no key single food such as seed mast that is variable, or perhaps they are limited by intensive predation from very abundant cats (*Felis catus*) and mustelids. Controlling cats or keeping them in at night may increase rat numbers, but this has not been tested.