

Predicting house mouse outbreaks in the wheat-growing areas of south-eastern Australia

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Abstract. Outbreaks of house mice (*Mus domesticus*) occur irregularly in the wheat-growing areas of south-eastern Australia and impact on agricultural production. Prediction of mouse outbreaks has been successful in the central mallee region of Victoria and we have attempted to extend this prediction to a wider region of Victoria and South Australia. We developed two models: (1) a qualitative outbreak prediction from winter and spring rainfall and (2) a quantitative prediction of maximum autumn density of mice from winter and spring rainfall and spring mouse abundance. Both models have achieved some success at prediction. For the qualitative model we can achieve 70% correct predictions from winter and spring rainfall. The quantitative model is less satisfactory, and although it gives some predictability of high autumn densities, it misses too often the severe outbreaks that cause most damage. We highlight the demographic problems that need further analysis to increase our predictive abilities for mouse outbreaks.