

# Outbreaks of rodents in agricultural systems: pest control problems or symptoms of dysfunctional ecosystems?

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**Abstract.** House mice in Australia and Brandt's voles in China are used to illustrate the factors that lead to episodic rodent management problems in agricultural systems. Outbreaks can develop rapidly in both species, depending on the population density at the onset of breeding, the rate of increase over the breeding season, and the duration of the breeding season. The available data suggest that these demographic parameters are determined by independent processes, which means that knowledge of all three is required to predict outbreaks reliably. As well as dealing with uncertainty in predicting outbreaks, management of both species could be improved by identifying and enhancing natural regulatory processes like predation and minimising agricultural practices that tend to increase the likelihood of outbreaks.