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Reproductive changes in fluctuating house mouse populations in southeastern Australia

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Abstract:

House mice (*Mus domesticus*) in the Victorian mallee region of southeastern Australia show irregular outbreaks. Changes in reproductive output that could potentially drive changes in mouse numbers were assessed from 1982 to 2000. Litter size in females is positively correlated with body size. When standardized to an average size female, litter size changes seasonally from highest in spring to lowest in autumn and winter. Litter size is depressed throughout breeding seasons that begin when the abundance of mice is high, but is similar in breeding seasons over which the abundance of mice increases rapidly or remains low. Breeding begins early and is extended on average by about five weeks during seasons when mouse abundance increases rapidly. The size at which females begin to reproduce is larger during breeding seasons that begin when mouse abundance is high. An extended breeding season that begins early in spring is necessary for the generation of a house mouse plague, but it is not in itself sufficient. Reproductive changes in outbreaks of house mice in Australia are similar but not identical to reproductive changes that accompany rodent population increases in the Northern Hemisphere. We conclude that food quality, particularly protein, is a probable mechanism driving these reproductive changes, but experimental evidence for field populations is conflicting.

Keywords:

mus domesticus australia outbreaks house mice plagues reproduction