

Chapter 6

POPULATION DYNAMICS—ABUNDANCE IN TIME

IN THE NEWS



House mouse (*Mus musculus*)

Outbreaks of rodents occur periodically in many parts of the world, destroying agricultural crops and stored food supplies and at times transmitting diseases to humans. During the Black Death of the 14th to 16th centuries, almost half the population of Europe died from the disease now known as bubonic plague, which is caused by bacteria transmitted from rat fleas to humans. In south-eastern Australia, the introduced house mouse (*Mus domesticus*) undergoes periodic variations in abundance. In most years it is difficult to find even a few house mice in the cereal-growing areas, but over the past century a major outbreak has occurred about every 10–15 years, with smaller outbreaks in between. During outbreaks, mice can reach densities exceeding 1,000 per ha, destroying grain crops and vegetables and infesting houses, hospitals and schools in rural areas. In the record outbreak of 1917, half a million mice were captured in four nights trapping on one farm alone.

For the past 25 years, ecologists have studied house mouse populations in south-eastern Australia to obtain more detailed information on how and why these destructive outbreaks occur. Their investigations reveal that house mouse abundance changes spectacularly from year to year:

Why were there extended periods of little or no population growth—for example, from 1985 to 1987 and from 1998 to 2001? Why did

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Half a million house mice captured on a single farm over four nights. (Photo courtesy of Grant Singleton.)