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## Population Dynamics – Session 2

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### **It's a trap: effective methods for monitoring mouse populations in Australia**

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Feral house mice cause substantial economic damage to grain crops in Australia, particularly during house mouse plagues. Populations are monitored to detect changes in abundance and to use in models to forecast likely mouse outbreaks. However, it is not possible to use live-trapping (the "gold standard") for assessing mouse abundance at a large number of monitoring sites spread across southern and eastern Australia. A range of alternative methods was tried to assist the grains industry with strategic decisions to reduce crop damage. The aim of this work is to determine which survey methods could provide useful, affordable information across a large area. Monitoring of mouse populations was conducted at representative grain farms using (1) live trapping at long-term ("benchmark" sites (n=3), (2) mouse chew cards and active burrow counts (n=110 farms), and (3) qualitative information networks with growers, grower groups and advisors (n=12 regions). Monitoring was conducted over 5 years through low, medium and high abundance conditions. Live trapping provided the most useful, but most expensive, information. There was wide variability in chew card and active burrow counts much of which was unlikely to be due to differences in mouse abundance. When alternative food was abundant, mice did not use chew cards. When crop biomass was high, it was difficult to detect active burrows. Live trapping supplemented with data from chew cards and active burrows remains the best approach to monitor a wide range of sites. We are now exploring development of automated recording systems to signal changes in mouse activity in fields. These systems will need to be compared against data from live trapping sites over a range of conditions. It is likely that live-trapping will need to be used for the foreseeable future to provide useful information such as breeding condition and population abundance, required for the forecast models.

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# Julius-Kühn-Archiv

Jens Jacob, Jana Eccard (Editors)

6<sup>th</sup> International Conference of Rodent  
Biology and Management  
and  
16<sup>th</sup> Rodens et Spatium

Potsdam, Germany, 3-7 September 2018

Book of Abstracts



Julius Kühn-Institut  
Bundesforschungsinstitut für Kulturpflanzen

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