Impact of village-level rodent control practices on rodent populations and rice crops in Vietnam

Peter R. Brown[1,*], *Nguyen Phu Tuan*[2], *Grant R. Singleton*[1], *Nguyen Van Tuat*[2], *Tran Quang Tan*[2] *and Le Thanh Hoa*[2]

[1]CSIRO Sustainable Ecosystems, GPO Box 284, Canberra, ACT 2601, AUSTRALIA
[2]National Institute of Plant Protection, Chem, Tu Liem, Hanoi, VIETNAM
*Corresponding author, email: peter.brown@csiro.au

Abstract. In Vinh Phuc, Vietnam, data on the species composition, population abundance, breeding, and habitat use of the main rodent pest species were obtained. Four sites were selected for a replicated field experiment to examine the effectiveness of ecologically-based rodent management at a village-level scale. We present 14 months' data from the beginning of the experiment, the first 11 months of which were before any management actions were imposed. Live-trapping was conducted every month within three different habitats of the rice-growing area. The main rodent species present were *Rattus argentiventer* (58%), *R. losea* (22%) and *R. rattus* (12%). There were two main peaks in population abundance, each following harvest of the main rice crops. Captures of rats were very low from March to May, at the end of the winter crop season when vegetable crops were grown. Breeding was evident from maximum tillering to just after harvest for each of the spring rice crops and summer rice crops. The use of habitats was slightly different for *R. argentiventer* and *R. losea*, with more *R. argentiventer* trapped along big channel banks compared with small banks and big banks. When the abundance of *R. argentiventer* was low, more *R. losea* were trapped along big channel banks, and when more *R. argentiventer* were trapped, *R. losea* favoured small banks, which suggested interspecific competition. It will be important, therefore, that any practice imposed to manage *R. argentiventer* also manages *R. losea*. Based on our understanding of the rodent community and population dynamics, we developed a series of rodent management practices to reduce damage to crops. These included targeting rodent management within refuge habitats early in the growth of the rice crop and the application of a community trap–barrier system.