

EDITORIAL

**Integration of ecology and biology for the management of rodents:
International perspectives 1**

The papers presented in this special issue of *Integrative Zoology* (and over the next two issues) were mostly presented at the Third International Conference on Rodent Biology and Management (ICRBM) that was held in 28 Aug–1 Sept 2006 in Hanoi, Vietnam (for a summary of the conference, see the summary report by C. J. Krebs in *Integrative Zoology*, 1(4), 194–195). The conference attracted an international audience of 130 participants from 35 countries, with a good mix of developed and developing countries, and students and researchers, with a particular emphasis on supporting scientists and students from developing countries. The conference provided an opportunity for all participants to refresh and update their knowledge of scientific, technical and extension developments in the field of rodent biology. There were approximately 110 spoken papers and 50 posters over the 4 days of the conference. The papers presented at the conference, and those that will be published over the next two issues of *Integrative Zoology*, represent the spread of papers presented at the conference, and reflect the exciting work that is being done across the spectrum of biology, ecology and management of rodents throughout the world. The three main themes of the conference were: (i) rodent biology; (ii) rodent ecology; and (iii) rodent management. We follow these themes throughout the special issues of *Integrative Zoology*.

These papers build on the previously published literature from the two previous ICRBM conferences held in Beijing, China, in 1998 and Canberra, Australia, in 2003, which led to publication of the books entitled *Ecologically Based Management of Rodent Pests* (Singleton *et al.* 1999) and *Rats, Mice and People: Rodent Biology and Management* (Singleton *et al.* 2003), respectively. The organizing committee of the Third ICRBM elicited con-

tributions to *Integrative Zoology* with the desire of continuing some of the main themes of the conference and expanding and integrating some of the concepts that emerged to push the frontiers of rodent biology and management.

The two papers in the ecology section cover the life-history traits, food supply and population dynamics of the white-footed mouse (*Peromyscus leucopus*) from a 33-year mark-and-recapture study in a forest in eastern North America (Vessey and Vessey 2007), and various sampling strategies to assess rodent damage to maize crops in Tanzania (Mulungu *et al.* 2007). Both species cause serious damage to crops and they both have the potential to carry diseases that can affect humans. It is necessary to understand the population dynamics and the nature of the damage in order to develop appropriate management actions.

The two papers in the rodent biology section cover the community structure of rodents in a tropical forest in southern Vietnam (Kuznetsov & Filatova 2007), and relationship between increase rate of human plague in China and global climate index (Zhang *et al.* 2007).

The four papers in the rodent management section cover the management of rodents (*Microtus* spp. and *Peromyscus* spp.) in a no-till agricultural system in north-western United States (Witmer *et al.* 2007), a survey of farmers' knowledge, attitudes, and practices with respect to rodent management in the upland farming systems of Laos (Brown & Khamphoukeo 2007), key issues for the adoption of ecologically-based rodent management practices in lowland irrigated rice fields in Vietnam (Palis *et al.* 2007), and a review of some control methods for voles (*Microtus socialis*), which cause damage to alfalfa in Israel, including light interference, use of irriga-

tion water to flood burrows, and use of nesting boxes for barn owls (Haim *et al.* 2007). Each of these papers demonstrates the importance of understanding the biology and ecology of the main pest species and relating control methods to achieve the best outcomes. Furthermore, these papers show how important it is to design rodent management strategies that fit within the farmers' capabilities and capacity, and how to achieve effective adoption of control practices among farmers.

The papers presented at the Third ICRBM that are presented in this special issue of *Integrative Zoology* and the subsequent special issues underscore the importance of understanding the basic aspects of rodent biology and ecology, leading to the development of management strategies for this important group of pests. The papers in this issue demonstrate the breadth of work currently being undertaken across the world, with relevant results that could be applicable to many situations.

We sincerely thank the organizing committee of the Third ICRBM, particularly Dr. Steve Belmain, Dr. Lyn Hinds, Dr. Charles Krebs, Dr. Herwig Leirs, Dr. Grant Singleton and Dr. Nguyen Van Tuat. The National Institute of Plant Protection of Vietnam hosted the Third ICRBM. The Institute of Zoology of the Chinese Academy of Sciences, the CSIRO, the Australian Agency for International Development (AusAID), the Australian Centre for Agricultural Research, and the Netherlands-based Technical Centre for Agricultural and Rural Cooperation were the main sponsors.

Please enjoy these papers, and we look forward to the next two issues.

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