

# MANAGEMENT OF RODENT PESTS IN SOUTHEAST ASIA

**Newsletter 4: August 1997**

*The Australian Centre for International Agricultural Research (ACIAR) funds a research project on the "Management of Rodent Pests in Southeast Asia". The project is coordinated by the Rodent Research Group of CSIRO Division of Wildlife and Ecology. This is a twice yearly newsletter which reports on developments in rodent research in Asia, Indo-China and Australia.*

## DEVELOPMENTS IN THE ACIAR PROJECT

- Since 1995, ACIAR and the Government of Indonesia have been supporting the development of a rodent research facility at the Research Institute for Rice (RIR) in Sukamandi, West Java. The efforts were applauded in March, when the RIR Rodent Group's laboratories and offices were officially opened by the Director-General of Indonesia's Agency for Agricultural Research and Development. The centre is now a focal point for research into population dynamics, disease and management of rodent pests in Indonesia.
- Following the opening, the third annual Project Coordination Meeting for the ACIAR rodent management projects was held at the tranquil Gunung Mas Tea Estate near Bogor. The meeting was hosted by the Central Research Institute for Food Crops (CRIFC) and attended by representatives from Indonesia, Malaysia, Vietnam, China, Laos and Australia. The past year's results were presented, directions for the project's research considered and national priorities for rodent management identified and discussed.
- The rodent management project is now in its third year. In keeping with ACIAR protocol, a major project review will take place in August. Three external reviewers will travel to Indonesia, Malaysia, Vietnam and Australia to review the scientific progress and impact of the research in each of the collaborating countries.

# RODENT PROBLEMS IN LAOS

*Mr Onechanh Bounnaphol is the head of the Agriculture and Forestry Services Office in Luang Prabang, one of the provinces annually affected by rodent pests. Dr John Schiller is the team leader of the Lao-IRRI project and is based in Vientiane. Mr Bounnaphol has attended the last two Project Coordination Meetings of the ACIAR rodent management projects. The following report is a precis of papers prepared by Mr Bounnaphol and Dr Schiller for presentation at those meetings.*

Laos is a land-locked country covered by a network of rivers and mountains. Rice is the single most important agricultural crop, accounting for more than 80% of the cultivated land area. The importance of rodents relative to other rice production constraints in rainfed upland, rainfed lowland and irrigated environments has been well documented by the Lao Department of Agriculture and Extension.

Rodents are not considered a significant problem by farmers in the rainfed lowlands and irrigated environments. An exception exists in areas of northern Laos, where natural refuges and breeding areas occur adjacent to rice crops. However, conventional control techniques usually give adequate control.

Upland farmers consistently rate rodents as one of the most important constraints to rice production - second only to weed infestation. But whilst farmers are able to exercise significant control over the impact of weeds on crop yield, the rodent problem is usually regarded as beyond the management resources of most upland farmers.

Current control techniques in all areas centre around the use of traditional traps (such as those shown here), snares, crossbows and pitfall traps. The use of poisons is officially discouraged, is generally considered too expensive and has led to the almost complete eradication of one of the rodent's major predators, the cat. The importance of other natural predators, such as owls and snakes is now promoted by agricultural extension services.

Decimation of upland rice crops resulted in near-famine conditions in districts of Luang Prabang province in 1991. The provincial government responded to these losses by providing farmers with an incentive to kill rats. A bounty of 10 kip per tail (about US1.5 cents) was paid for each rat tail - over 600 000 tails were collected by growers in under 3 months.

The need for effective and integrated management strategies to control rats is recognised at both the provincial and national level of the Lao government. A good understanding of the biology and population ecology of the pest species will provide a solid foundation.

For further information on the rodent problem in Laos, please contact:

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## RAT MOVEMENT BETWEEN VIETNAM & CAMBODIA

Mr Nguyen Quy Hung is the leader of rodent research at the Institute for Agricultural Sciences of South Vietnam (IAS). He is based in Ho Chi Minh City, but his research and extension activities span the Mekong delta. He and his team are researching the distribution of different rodent species, the population ecology and habitat use of the major pest species and efficacy of new and old control techniques. The progress of and interest in the research is in no small part due to Mr Hung's strong network with farmers, plant protection agencies and other agricultural research groups. The report below details a study instigated by IAS to investigate the question of rat migration in the border region between Vietnam and Cambodia.

Rats are considered the most important pre-harvest pest in the Mekong delta region of Vietnam. Some provinces have annual losses of rice production of between 10 and 25. Particularly severe damage is commonly recorded in provinces along the border of Vietnam and Cambodia.

There is a strongly-held belief by farmers in the border region that rat problems are predominantly the result of an annual migration of rats from neighbouring Cambodia. To test this theory, in Kien Giang province IAS staff have constructed a plastic fence which is 1.5 kilometres long. The fence lies between the Cambodian border and the fields of Vietnamese farmers. Traps are placed along the fence - half facing towards Vietnam and half facing towards Cambodia. The study began in September 1996, with animals processed daily by local farmers and plant protection staff.

Crop management in the two countries varies dramatically. Two rice crops are grown in Vietnam each year, separated by an annual flooding event. Cambodian farmers are able to produce only one rice crop, due to poor irrigation infrastructure. For the remainder of the year, rice fields are mostly left barren. In addition, land in Cambodia is more elevated in comparison to Vietnam and so is not subject to the same level of inundation.

Rats began moving from Vietnam to Cambodia in mid-October, capture rate reaching a dramatic peak at the end of October. This corresponded to the harvest of the Vietnamese wet season crop and to the booting/flowering stage of the Cambodian crop. The study site was flooded from the start of November to mid-January. From mid-January, the number of rats moving from Cambodia to Vietnam steadily increased, peaking at the end of February. At this time, Cambodian farmers were harvesting their crop and burning the rice straw. Across the border, the Vietnamese dry season crop was approaching tillering/booting stage.

The research is ongoing, but there already appear to be important implications for the application and timing of rodent control strategies for these border regions.

An intriguing result is the species composition of migrating rats. It appears from trapping data collected thus far that the ricefield rat, *Rattus argentiventer*, is the predominant species moving from Vietnam to Cambodia but it is *Rattus losea* making the journey to Vietnam!

For further information on the activities of the IAS rodent research group, please contact:  
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## COMING EVENTS

As outlined in the last newsletter, a Crawford Fund Master Class in Vertebrate Pest Management is to be held at the CSIRO Division of Wildlife and Ecology in Canberra from 17 October to 7 November 1997. The aim of the class is to train managers and scientists in best practice vertebrate pest management, with an emphasis on rodent pest management.

We received many applications of high quality. Unfortunately there were only places for 14 applicants. We would like to thank all who applied. Due to this positive response, we are considering holding a second course in the future.

Participants are from Indonesia, Malaysia, Vietnam, Laos, Myanmar, China, Tanzania, South Africa, Sri Lanka, Nepal, India and Thailand. It is hoped that the knowledge gained during the course will not only aid the participants in their own areas of expertise, but will also be disseminated to other scientists, managers and policy-makers in the participants' home country.

A report on the course will appear in the next newsletter.

The CSIRO Rodent Research Group is launching into the computer age! A World Wide Web site is under construction which will detail the group's current research on control of mouse plagues in Australia and rodent management in Asia.

It is envisaged that this rodent management newsletter will be incorporated into the site, thus increasing the potential reading audience significantly. So please be sure to include a contact address with your articles!

Details of the Internet address will be given in the next newsletter.

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This newsletter presents the personal views of the individual authors and not necessarily those of ACIAR, CSIRO or collaborators in the project, "Management of Rodent Pests in Southeast Asia".

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