

# Ecologically based management of rice-field rats on a village scale in West Java: experimental approach and assessment of habitat use

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**Abstract.** A major constraint to rice production in Southeast Asia is pest rodents. In a large-scale replicated field study, we are examining the effect of ecologically based rodent pest management on rodent numbers, pre-harvest rodent damage, yield and the use of chemicals. This paper describes the rationale for including community rat campaigns as a management tool in this study. We present data on the spatial and temporal patterns of habitat use by rice-field rats (*Rattus argentiventer*), which are the major mammalian pests in lowland irrigated rice in Indonesia. Rat numbers showed similar fluctuations in rice fields, crop margins and village garden habitats. Most rats were caught during fallow and land preparation, possibly as a result of increased movements post-harvest. At this time, many more rats were captured in crop margins and village garden habitats than in rice fields. Similar numbers of rats were present in all habitats at tillering, ripening and harvesting of rice. We conclude that community rat campaigns targeted at refuge habitats (crop margins, village gardens) shortly before transplanting rice from nurseries into the rice fields should considerably decrease the founding population of rice-field rats for the next cropping season. This refuge campaign, combined with the application of community trap-barrier systems during the standing crop should minimise rat damage to rice crops and increase yield.