

EFFECTS OF IMPOSED STERILITY ON MOVEMENT PATTERNS OF FEMALE RICEFIELD RATS

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Abstract: Fertility control is used for the management of overabundant species. If sterilized individuals abandon their territories, fertile immigrants may invade and compromise fertility control. In southeast Asia, ricefield rats (*Rattus argentiventer*) can cause significant pre-harvest damage to lowland irrigated rice fields and may be a prime target for the use of fertility control. However, little is known about the behavioral response of ricefield rats to sterilization. We tested the effects of surgical and hormonal sterilization on movement patterns of female ricefield rats in rice fields in West Java, Indonesia. We found that surgically sterilized rats had the largest home ranges (1.8 ± 0.1 ha), about twice the size of home ranges of hormonally sterilized rats and fertile rats. Hormonally sterilized rats tended to lose their territories—indicated by a high rate of burrow relocation—although hormonally sterilized, surgically sterilized, and fertile rats did not leave the ricefield system. We found no difference in survival rate and preference for refuge habitats between sterilized and fertile rats. Although changes in movement patterns after sterilization occurred, these changes are unlikely to affect the success of fertility control in ricefield rats negatively because sterilized rats remained in the ricefield system throughout the breeding period.

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