Population Dynamics – Session 2

The linkage between *Melocanna* bamboo flowering and rodent outbreaks: an empirical study from Chittagong Hill Tracts of Bangladesh

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In 2006 to 2010 rodent population outbreaks resultant from the 50-year cycle of bamboo flowering were reported in Mizoram, India, the Chittagong Hill Tracts, Bangladesh, and Chin State, Myanmar. The ecological dynamics between rodent population outbreaks and bamboo flowering were studied in Ruma Upazila of Bandarban district. Small mammal trapping (March 2009 to December 2011) in the villages of Basatlang, Munlai, Mualpi and Neweden was carried out to understand the dynamics of rodent populations in different habitats. The highest percentage of rodent species was captured at community households, followed by bamboo forests, crop fields and outside around villages. Ecological survey of bamboo flowering and bamboo seed fall in 2009 found that there were differences in partially rodent eaten seeds per square meter by month (p=0.0001) and a positive correlation between seed fall and partially eaten seeds (r =0.611). In 2010 there was a positive correlation (r =0.417) between seed fall and the number of rodent damaged seeds in response to cut, burned and normal bamboo forest. The study confirms that massive bamboo seed fall increases food availability for rodents, rodents do indeed eat bamboo seeds and the extended availability of seed leads to population outbreaks. Particularly *Rattus rattus* was able to breed for 4-5 months in the forest with animals migrating out in to farmers' fields as the bamboo seed germinated, causing crop losses of 80-100%. Shortening the time of rodent breeding was possible by cutting and/or burning the bamboo forest at the time of flower initiation as this led to a significant delay in seed production. Implementing large scale bamboo clearance could help prevent the development of population outbreaks or reduce their severity. Although farmers did not feel competent or knowledgeable about rodent management, their main coping strategy of planting earlier ripening rice crops in order to harvest before rodent outbreaks develop, is a sound strategy that should be encouraged during outbreak years. Research on increasing the yield of earlier ripening crops could help manage food insecurity during rodent outbreaks.
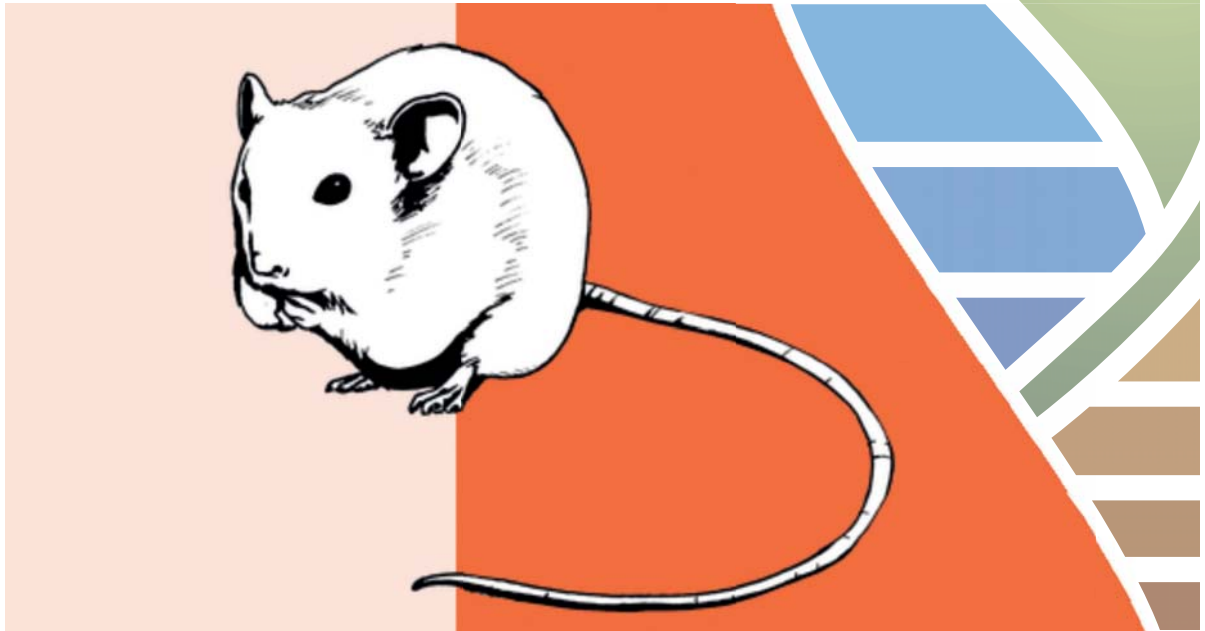
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Julius-Kühn-Archiv

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Printed in Germany by Arno Brynda GmbH, Berlin.