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Factors influencing the distribution and abundance of small rodent pest species in agricultural landscapes in Eastern Uganda

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Abstract. Small rodents are increasingly gaining importance as agricultural pests, with their distribution and abundance known to vary across landscapes. This study aimed at identifying ecological factors in the landscape that may influence small rodent distribution and abundance across agricultural landscapes in Uganda. This information may be used to inform the development of adaptive control measures for small rodent pests. Small rodent trapping surveys were conducted in three agro-ecosystem landscapes: Butaleja, Mayuge and Bulambuli districts in Eastern Uganda between November 2017 to June 2018 covering both dry and wet seasons. Data on small rodent abundance and richness, vegetation characteristics, land use/cover characteristics, farm management practices and soil characteristics were collected from quadrats. Additionally, Geographic Information System and remote sensing were used to determine vegetation characteristics (Normalized Difference Vegetation Index – NDVI) and land use/cover from satellite images. Our results showed that crop field state (including hygiene, crop type and growth stage) is the most important variable with an overall relative importance of 34.4% prediction value for the abundance of *Mastomys natalensis* across the landscape studied. In terms of number of species encountered (species richness), results showed field crop status scoring highest with an overall relative importance of 39.8% at predicting small rodent species richness. Second in importance for overall rodent abundance was percentage composition soil silt particles with 15.6% and 18.1% for species richness and abundance respectively. Our findings have important implications for small rodent management, where land use characteristics, especially field crop state, is a critical factor as different conditions tend to affect rodent abundances differently. The study thus recommends that control

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