Vector compositions change across forested to deforested ecotones in emerging areas of zoonotic malaria transmission in Malaysia

ABSTRACT

In lowland areas of Malaysia, Plasmodium knowlesi infection is associated with land use change and high proportions of the vector Anopheles balabacensis. We conducted a 15-month study in two Malaysian villages to determine the efect of habitat on vector populations in understudied high-altitude, highincidence districts. Anopheles mosquitoes were sampled in human settlements, plantations and forest edges, and screened for Plasmodium species by PCR. We report the frst An. donaldi positive for P. knowlesi. This potential vector was associated with habitat fragmentation measured as disturbed forest edge:area ratio, while An. balabacensis was not, indicating fragmented land use could favour An. donaldi. Anopheline species richness and diversity decreased from forest edge, to plantation, to human settlement. Greater numbers of An. balabacensis and An. donaldi were found in forest edges compared to human settlements, suggesting exposure to vectors and associated zoonoses may be greater for people entering this habitat.