Relationship between microhabitat structure and otter presence in an oil palm dominated landscape of Sabah, Malaysia

ABSTRACT

Land-use changes derived from agricultural expansion and urbanization is a global conservation concern in Southeast Asia. Impacts from these activities particularly oil palm plantation intensification has a detrimental effect on aquatic habitats, leading to biodiversity loss and degraded water quality. Riparian species such as otters whose habitats expand linearly beyond undisturbed habitats may be sensitive towards human-modified landscapes due to changes in the surrounding forests and water bodies. The present study investigates the relationship between microhabitat structure and otter presence based on tracks and spraints in an oil palm dominated landscapes located in southeastern Sabah, Malaysian Borneo. To examine the relation between habitat parameters and otter occurrence, we conducted Principle Component Analysis (PCA) and Generalized Linear Model (GLM). Several microhabitat structures were found to be positively associated with otter presence. Results from the GLM analysis showed that substrates with high exposed soil or a combination of exposed soil and rocks, and substrate with low rock content supported higher otter presence. The proximity to oil palm plantations is also a good predictor of otter presence with a positive effect, where streams located closer to plantations contained higher signs of otters. In contrast, the presence of otter was negatively affected by narrow stream width, narrow stream banks and stream located further away from the nearest human settlement. Result of this study revealed the persistence of otters in human-modified areas especially in oil palm dominated landscapes provided that important habitat parameters are present for otter activities (spraining, grooming, denning) and for successful conservation planning.