# Anthropogenic influences on deforestation of a peat swamp forest in Northern Borneo using remote sensing and GIS

## ABSTRACT

Aim of study: To study the anthropogenic factors that influence the fire occurrences in a peat swamp forest (PSF) in the northern part of Borneo Island. Area of study: Klias Peninsula, Sabah Borneo Island, Malaysia. Material and methods: Supervised classification using the maximum likelihood algorithm of multitemporal satellite imageries from the mid-80s to the early 20s was used to quantify the wetland vegetation change on Klias Peninsula. GISbased buffering analysis was made to generate three buffer zones with distances of 1000 m, 2000 m, and 3000 m based on each of three anthropogenic factors (settlement, agriculture, and road) that influence the fire events. Main results: The results showed that PSF, barren land, and grassland have significantly changed between 1991 and 2013. PSF plummeted by about 70% during the 19-year period. Agriculture exhibited the most significant anthropogenic factor that contributes to the deforestation of the PSF in this study area with the distance of 1001-2000 m in 1998 fire event and 0-1000 m in 2003. Additionally, the distance to settlement played an increasingly important role in the fire affected areas, as shown by the increase of weightages from 0.26 to 0.35. Research highlights: Our results indicate that agriculture is the most influential anthropogenic factor associated with the fire-affected areas. The distance to settlement played an increasingly important role in the fire affected areas and contributes to the deforestation of the PSF in these study areas.