

Operational peat swamp spatial sensitivity model development

ABSTRACT

Large-scale patterns of peat swamp forest (PSF) biodiversity have until now been obscured by a sparse and scattered inventory record. Known as edaphic forest, it existed in highly acidic soil and waterlogged condition. PSF had been degraded due to various anthropogenic purposes and the impact is largely affected on species level. This fragile forest is facing constant threats at alarming rate and the need of sensitivity study at landscape level is crucial in order to reduce the disturbance impact in PSF area. Here we present the first comprehensive sensitivity spatial model based on disturbance level of tree compositions for PSF in Pekan, Pahang. Data from the hyperspectral imaging will be integrated with ground measurement data to delineate tree PSF zoning and determine PSF the sensitivity levels. PSF spatial sensitivity model is simulated on combination parameters which derive from land cover/land use mapping, physical factors, and tree species composition based on spatial ecology software with integrated GIS features. Using spatial ecology modeling, the PSF spatial sensitivity zoning will be linked into geographic database. Initial sampling design decisions in PSF sensitivity studies using observational field assessment influence the ability to detect and accurately estimate the impacts. As the fragile PSF is high in sensitivity and any slight disturbance natural elements may cause it vulnerable to vast destruction areas. Sensitivity modeling on entire ecosystem is important to investigate the sensitivity level of ecosystem due to changes nearby. The model developed can be used to assess the fragility of PSF ecosystem due to physical changes and surrounding. Later, model can be used as indicator for forest conservation and help in preventing and monitoring vulnerable area of PSF.

Keyword: Peat swamp forest; Hyperspectral; Tree species compositions; Sensitivity model; Disturbance level