



Impact Assessment of Invasive Alien Plants on Soil Organic Carbon (SOC) Status in Disturbed and Moderately Disturbed Patches of Hailakandi District in an Indo Burma Hotspot Region

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Abstract: Invasive alien plants introduced in novel ecosystem either accidentally or intentionally can perturb the diversity of native plants and concomitantly influence the soil nutrient dynamics. The present study aimed to investigate the impact of the invasive alien plants (IAPs) on the native vegetation diversity and the soil in forestry/agro-forestry ecosystems of Hailakandi District, Assam. This region is of extreme ecological relevance as it underlies in an Indo Burma hotspot region. In this study, an ecological investigation is performed along disturbance gradient to emphasise the plant-plant and plant-soil interrelationship. A total of 68 plant species were recorded in vegetation analysis during the ecological assessment of IAPs. The similarity index in herbs and the shrubs layer were 0.56 and 0.46, respectively. Meanwhile in soil analysis, the soil organic carbon (SOC) and the soil organic matter (SOM) were noted higher in the moderately disturbed site, when compared with the disturbed site. The study further observed that land use change significantly influences and plays a crucial role for the landscape spread of IAPs. Also, they alter native vegetation composition and cause depletion in SOC and SOM. This plant invasion ecology studies therefore predicted that land use changes increased pressure on the natural ecosystems, especially during the monsoon season.

Keywords: Invasive alien plants, Plant-plant interactions, Plant- soil interactions, Indo-Burma hotspot, Land use change
