

Characterization of plant species diversity and abundance to inform effective rehabilitation of Cherangany hills forest

Abstract

Cherangany Hills Forest contains high levels of tree species diversity and endemism and is in critical need of conservation and restoration. Little is known about natural regeneration dynamics of isolated forest fragments forming the Cherangany, or the potential for human action to aid recovery of lost structures and functions following deforestation/degradation. Here, data and analyses are presented from a series of rapid ecological surveys conducted in the main forest fragments of highly impacted, low impacted and no impact forest mosaics. A total of 337 plants species were recorded which is an improvement from a total of 302 plant species recorded in the last survey done in early 1990s. Embobut forest block which in the highly impacted category had the lowest regeneration potential in contrast to Kipkunur block, low impacted fragment which had the highest. Study results indicated that continued human disturbances has led to diminishing density of key commercial hard timber tree species like *Hagenia abyssinica*, *Olea welwitschii*, *Warbugia ugandensis*, and *Juniperus procera*. The low density of both mature trees and seedlings in degraded sites may undermine the long-term viability of these key species. Selection of potential restoration tree species for each fragment should consider the density of individual tree species with priority given to species with low density for rehabilitation. Furthermore, analysis of illegally harvested trees highlighted the important role of indigenous tree species as a source of ecosystems services to local people; an important consideration for forest conservation and rehabilitation planning for the ecosystem.

Keywords: Water Towers, Degradation, Regeneration, Management response