

## INHIBITION OF FOREST REGENERATION BY *AGERATINA RIPARIA* (REGEL) R.M. KING & H. ROB IN THE KNUCKLES FOREST RESERVE

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The invasive herb *Ageratina riparia* (Regel) R. M. King & H. Rob. is spreading rapidly in the submontane forests in Sri Lanka. It forms a thick ground layer in these forests and it has been documented to inhibit the regeneration of the forest species in several countries. *A. riparia* grows in forest gaps, along edges and footpaths in disturbed submontane forests in the Knuckles Forest Reserve (KFR). Six forest gaps, four footpaths inside disturbed submontane forests and five road side locations at KFR were selected to evaluate the effect of *A. riparia* on the regeneration of forest species. The percentage cover of *A. riparia*, density of seedlings of forest species, soil moisture content, soil root density and canopy openness were determined at the above locations. Soil seed bank experiments were carried out during wet and dry seasons. The percentage cover of *A. riparia* decreased significantly when moving away from the footpaths (from 62.5 to 11.3 %) and the forest gaps (from 75 to 0.17 %) into the forest interior. The mean density of seedlings of forest species was lower ( $2.7 \pm 0.7$  in d.m<sup>-2</sup> in footpaths and  $2.7 \pm 0.7$  in d.m<sup>-2</sup> in gaps) in quadrats with higher cover of *A. riparia* (62.5 % in footpaths and 7 % in forest gaps). The richness of forest species was lower in the quadrats with higher percentage of *A. riparia* cover. The root density of forest species was lower in areas where the root density of *A. riparia* is higher. The soil moisture content did not vary significantly when moving into the forest interior from forest gaps and footpaths. The canopy openness was higher in the forest gaps than along the footpaths. Higher number of *A. riparia* seedlings emerged during the dry season (total no. of seedlings, 55 seedlings in forest gaps and 41 in footpaths) than the wet season (total no. of seedlings, 18 in forest gaps and 23 in footpaths) in footpaths and forest gaps. Lower number of forest seedlings emerged in locations with higher emergence of *A. riparia* seedlings during both seasons. Emergence of *A. riparia* seedlings was higher in the roadsides (186 seedlings) than the forest gaps (18 seedlings) and footpaths (total 41 seedlings) during the wet season. The availability of light affected the establishment of *A. riparia* under submontane forest canopy. *A. riparia* seems to suppress the growth of seedlings of the native species in the disturbed submontane areas and thereby affect the forest regeneration. Since native forest species such as *Psychotria zeylanica* Sohmer (0.75 individuals m<sup>-2</sup> for footpaths and 2 individuals m<sup>-2</sup> for forest gaps) and *Symplocos cochinchinensis* (Lour.) S. Moore (0.75 individuals m<sup>-2</sup> for foot paths and 0.33 individuals m<sup>-2</sup> for forest gaps) had high seedling densities even with high *A. riparia* cover, they can be used to restore disturbed submontane forest patches invaded by *A. riparia* in the Knuckles Forest Reserve.