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Seed Rain in a Tropical Lowland Rainforest Fragment in Central Sri Lanka**Wanigasinghe I. *, Gunaratne T.***University of Peradeniya, Sri Lanka*
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Fragmentation of tropical rainforests can adversely affect seed dynamics due to the habitat loss, changed habitat configuration and altered species interactions. Halgolla Forest Reserve (HFR) is an isolated tropical lowland wet evergreen rainforest fragment, located in central province of Sri Lanka. Despite its small size, it harbors high biodiversity with many endemic species. However the biodiversity of HFR is highly threatened due to the agricultural expansion, illegal encroachments and logging. Thus, the study investigated the regeneration potential of the fragment by assessing seed rain dynamics in HFR. Comparisons were made for seed density and species diversity in seed rain of the forest edge (highly disturbed), riverine area (less disturbed) and forest interior (undisturbed) habitats for one year. Thirty plots of 10×10 m² (ten plots each per habitat) were established using stratified random sampling at the forest edge, forest interior and riverine areas. Seed traps (1×1 m²) were placed in each plot and contents of traps were collected once in two weeks from November 2017 to November 2018. Seed morphotypes and abundance of species were recorded and diversity indices were calculated to make the comparisons between the three habitats. A total number of 28,714 seeds were recorded under 107 morphospecies in the seed rain. The seed density was higher in the forest edge (1,659.6 m⁻²year⁻¹) than in the forest interior (533.1 m⁻²year⁻¹) and the riverine habitat (678.8 m⁻²year⁻¹). The differences in seed density between forest edge and interior habitats may be due to the altered seed dispersal patterns after fragmentation. Seed rain peaked at the end of dry season prior to the beginning of rainy season. The highest seed abundance was recorded by *Ficus* spp. in all three habitats. Species richness was more or less similar in all three habitats. Species diversity and evenness were lower in more disturbed forest edge than in forest interior and riverine habitats. HFR has a high regeneration potential probably due to being closer to other forest patches that can act as seed sources for HFR. However the influx of non-rainforest species through seed rain such as *Coffea arabica* L., *Camellia sinensis* (L.) Kuntze, *Alstonia macrophylla* Wall. ex G. Don and *Swietenia macrophylla* King from surrounding matrix is an evidence for habitat disturbance which indicate a threat to the regeneration of native species surviving in the forest fragment. Conservation of this forest fragment through enhanced awareness and community participation is vital to preserve this biodiversity refugium.

Keywords: Seed rain, Tropical lowland rainforest fragment, Seed density, Species diversity