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Preliminary Assessment of the Fish Diversity of Kande Dola; A Mountain Brook

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Abstract

Kande Dola is a mountain brook found in the upper catchment area of the Bentara River, Sri Lanka; which is continuously affected due to many anthropogenic activities such as clearing of bank area for the tea cultivation, addition of agrochemicals and domestic waste, and construction activities on the flow path. The brook provides habitation for 18 fish species and many other aquatic faunal species. Out of the studied fish species, 7 species are endemic and 11 species are native to Sri Lanka. The study was carried out for a period of one year in 21 sampling points distributed over four identified regions of the brook such as starting region in plateau area (A), riffle region in sloppy area (B), entering region to the valley area (C), and ending region (D), where the brook enters to mainstream. For the characterization of the four different regions of the brook; the depth, width, flow rate, temperature, slope, elevation and percentage canopy cover were measured in each of the sampling points. Region A was characterized by the tea cultivations closer to the banks of the brook and manmade pools on the flow path; which are utilised for daily washing activities. Fast flowing waters with lesser anthropogenic disturbance characterise the region B; where natural rocky boulders occur in sloppy terrains obstruct the flow path. Region C is a shorter stretch of the brook completely modified, and water pooling is occurred due to constructions of the southern highway, which crosses over the brook. The flow rate is greatly reduced in the region D, where the surrounding area has been intensely utilized for paddy cultivation and cattle farming. According to the Shannon-Wiener index (H') calculations of the A, B, C, D regions; respectively shown the values of 1.345, 1.234, 1.345, and 1.456. The percentage of endemic fishes and the number of Endemic fish species found in A,B,C,D regions of the brook were also calculated and shown the values of (97.49%, 4), (29.11%, 1), (28.84%, 4), (18.93%, 4) respectively. According to the result, it was found that the highest percentage of endemic fishes are confined to starting region of the brook (A) which is badly affected due to the clearing of bank area for the tea cultivations and the addition of agrochemicals from the tea cultivations. The ending region of the brook (D) has shown the highest Shannon-Wiener index value due to presence of a higher number of native fish species in the downstream regions with comparing to the upstream regions of the brook.

Keywords: Brook, Fish species, Diversity, Affected, Regions