A preliminary study for evaluation of the current situation of a disturbed forest at Masmulla

W K D D Liyanage [1*], S N Gamage [1] and K A I Nekaris[2]

[1]*Department of Animal Science, Faculty of Agriculture, University of Ruhuna, Mapalana Kamburupitiya, Sri Lanka*

[2]*Department of Anthropology, School of Social Sciences & Law, Oxford Brookes University, Oxford, UK*

Sri Lanka has the highest species density for flowering plants in the Asian region. However, only a small fraction of Sri Lanka's biodiversity is known. In biodiversity studies, most scientists are usually concerning in relatively delightful locations and the rural, small, but may be higher valuable habitats are highly neglected. Those habitats are frequently subjected to the human impact and due to that the environment of those habitats is often changing without knowing to science. The objective of this study was to evaluate the current situation of a disturbed forest by human impact. Masmulla is a sparse and open moist monsoon forest situated in Matara District of Sri Lanka. It is surrounded by a buffer zone consisting of fine trees. Surrounding villagers commonly utilize this forest for their needs, making a large human impact on this vegetation.

The plotless sampling technique was used for the study and the nearest individual method (NIM), point-centred quarter method (PCQ) and the T-square method (TSQ) were used to calculate the tree density. Test of random distribution (TRD) was done to get an idea about the abundance of this vegetation.

One hundred trees were surveyed in transects and another 100 trees which were as the nearest neighbour of those trees. Thirty species observed were in 19 families, and the *Humboldtia laurifolia* of family Leguminosae represented the majority of trees (54%). The average height and the diameter of the sampled trees were 5.59 m and 21.17 cm respectively. A considerable number of trees were below this average height and diameter levels (63%). Fifty six percent of sampled trees had low number of saplings while 29% and 15% had medium and higher numbers respectively. The majority of the climbers were *Dalbergia spp.* (72%). Fourteen (14) endemic tree species were observed in this forest during the study. The density of the major tree species that were found in this forest (*Humboldtia laurifolia*) was 642 (PCQ) and 676(TSQ) (trees/ha). All of the other tree species have a density of 548 and 404 as the same calculations. The calculated average tree density of this forest was 1206 (NIM) and 1077 (TSQ). The calculated 't' value for the TRD was greater than +1.96 for all calculations. Therefore, the distribution is significantly more regular than a random distribution. Presence of a highest density of *Humboldtia laurifolia* shows that the floral diversity of forest has been changed for a long period. This may be happened due to the human impact. Therefore further studies and conservation measures should be taken to restore the natural habitat in this forest.

* wkddl@ansci.ruh.ac.lk Tel: 041 2292200 Ext: 256