

THE FIRST RECORD ON BIODIVERSITY OF THE ARBORETUM OF SEETHAWAKA WET ZONE BOTANICAL GARDENS, SRI LANKA

Sudheera M.W. Ranwala^{1*}, I.A.D. Nadeesha Dilrukshi¹,
D. Siril A. Wijesundera² and A. M. Achala S. Attanayake³

¹Department of Plant Sciences, University of Colombo, Colombo 03, Sri Lanka.

²National Institute of Fundamental Studies, Hantana Road, Kandy, Sri Lanka.

³Royal Botanic Gardens, Peradeniya, Sri Lanka.

ranwala@pts.cmb.ac.lk

Seethawaka Wet Zone Botanical Garden (SWBG) is a recent addition to the Botanic Garden Network of Sri Lanka. This paper documents flora and fauna in the arboretum area of SWBG for the first time and enumerated arborescent flora using thirteen 15m × 10m stands and determined the dominant woody species using the Important Value Index. To determine the seed rain during the year 2015 twenty seed traps (1m × 1m) were randomly placed 0.75m above the floor and the richness and abundance of the seeds were recorded. Fauna was recorded through opportunistic surveys conducted during day and night. Composite samples of top soil obtained up to 10 cm depth from stands were also tested for pH, conductivity, total contents of nitrogen, phosphate and potassium using standard soil analytical methods to reveal the edaphic features of the site.

The arboretum canopy was 2-6m high with small gaps representing woody species of disturbed lowland rain forests. It accommodated 50 woody plant species belonging to 30 families, including 10 endemic and 05 threatened plant species (*Anodendron paniculatum*, *Diospyros walkeri*, *Persea macrantha*, *Hortonia angustifolia*, *Gyrinops walla*). The most dominant arborescent species that significantly contributed to the IVI were *Mallotus tetracoccus*, *Syzygium caryophyllatum* and *Litsea longifolia*. The undergrowth vegetation included small saplings of woody species, shrubs and few herbs and was dense in places which received ample sunlight through canopy gaps. These represented 43 species from 21 plant families into which 02 endemic and 02 threatened species (*Hypolytrum nemorum* sub sp. *nemorum* and *Carex indica*) were included. The preliminary investigation on lower plants included 09 species of ferns from 07 families and 20 species of macro-fungi species belonging to 16 families. The early establishment of invasive alien species *Alstonia macrophylla*, *Dillenia suffruticosa* and *Clidemia hirta* at few sites was noted as an emerging threat to the vegetation.

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The seed rain at SBWG varied seasonally exhibiting the highest input of seeds in April-June months followed by January-March > July-September > October-December. The relative contribution species was *Alstonia macrophylla* > *Mallotus tetracoccus* > *Syzigium caryophyllatum* > *Pagianta dichotoma* > *Macaranga peltata*.

Fauna of SWBG included 67 bird species from 34 families including 8 endemic species. Out of them Punchi Binguharaya - Green Bee-eater, *Merops orientalis* was reported to be a threatened species. The fish species that inhabited aquatic habitats included 07 species belonging to 05 families and included 02 endemic and 02 threatened species (Uda handeya-, Day's killifish, *Aplocheilichthys dayi* and Gal weligouwa-Stone goby, *Sicyopterus griseus*). The mammals included 09 species belonging to 07 families. The threatened mammal species Sri Lanka Kalu-wandura-Purple-faced leaf monkey, (*Semnopithecus vetulus*) was included into this list. In addition, 12 species of reptiles from 8 families were also reported including 03 endemic species and 02 threatened species (Depath thudulla- Kelaarts earth snake, *Rhinophis homolepis* and Gatahombu katussa / Karamal bodiliya- Lyre head lizard / Hump snout lizard, *Lyriocephalus scutatus*).

The range of soil pH of the arboretum varied from 5.71 -6.87 while the conductivity ranged from 1.87- 3.94 reflecting a wide variation in mineral ions. The soil macronutrients contents varied (K>P>N) among stands. The total P range of arboretum soil was 106-260ppm, although very low value of 85ppm was also reported from one stand. The total potassium level varied from 105-817 ppm, but reported an exceptional value of 1173ppm in one stand while total N% varied between 0.12-0.25 excluding the stand which reported 0.07%. This would probably highlight minor topographic variations at the site and impact of soil on disturbances occurred at different scales during development of SWBG. In conclusion it is reported that the SWBG house a rich diversity of flora and fauna easily observable to the visitors. The arboretum vegetation exhibits a great potential to strengthen nature tourism in this area by serving as a representative sample of a disturbed lowland rain forest. Therefore, it is evident that the arboretum together with semi-natural landscapes enhances economic, aesthetic and ecological value of the SWBG.