

## DIVERSITY OF FERNS AND FERN-ALLIES IN FIVE TREE-DOMINANT HABITATS OF THE HANTANA RANGE

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Many fern species occur in the different types of woodlands of the Hantana Range. Their diversity and distribution however has not been studied adequately. A qualitative and quantitative study was therefore done in 5 different woodland types in the Hantana Range viz; Natural Forest (NF), Mixed Woodland (MXW), *Paraserianthes* Woodland (PAW), *Alstonia* Woodland (ALW) and *Pinus* Woodland (PIW) to compare the pteridophytic vegetation in these different habitats.

Four 10 x 10 m<sup>2</sup> plots were selected from each habitat and in each plot ten 1 x 1 m<sup>2</sup> quadrats were sampled. All the fern species in each quadrat were identified and numbers of each species recorded. The floristic features were investigated by using density, importance value index, species richness, diversity indices and dominance diversity curves.

Results revealed the presence of 41 species of ferns belonging to 27 genera and 14 families in these 5 different habitats. The total species count of NF showed the highest species richness followed by MXW, PAW, ALW and PIW. The highest number of individuals of ferns was recorded from the NF and followed in decreasing order MXW, ALW, PAW, and PIW.

*Crepidomanes campanulatum* (Hymenophyllaceae), *Pteris quadriaurita* (Pteridaceae), *Arachniodes aristata* (Dryopteridaceae), *Nephrolepis hirsutula* (Oleandraceae) and *Pteris ensiformis* (Pteridaceae) were the most dominant fern species and families in the NF, MXW, PAW, ALW and PIW respectively. Of the 30 fern species recorded from NF, 70% was specific to NF and 28.6%, 25%, 14.3% and 12.5% were specific to PIW, ALW, MXW and PAW respectively.

NF had the highest species richness and followed in decreasing order by MXW, PAW, ALW and PIW. NF was the most diverse habitat and followed in decreasing order by MXW, PAW, PIW and ALW. Fern species in NF were most evenly distributed followed by PIW, PAW, MXW and ALW. Rank abundance curves of NF and MXW indicated that there were several species with high abundance and more species with intermediate and low abundance and high in species richness and diversity. The curves of ALW, PAW and PIW indicated that they had one dominant species and others relatively uncommon and lower in species richness and diversity.

This study concludes that the remaining Natural Forest has the highest diversity, species richness and evenness of ferns and fern-allies when compared to the other four woodland types in the Hantana Range and this indicates that the Natural Forest may have the most favourable conditions for the ferns than the other habitats.