

**INFLUENCE OF *Brachystegia spiciformis* AND *Parinari curatellifolia* ON HERBACEOUS
FLORA AND SOILS IN
MUKUVISI WOODLANDS, HARARE**

By

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ABSTRACT

A comparative study between *B. spiciformis* and *P. curatellifolia*'s isolated and clumps of trees' influence on patterning and structure of herbaceous flora and soils with those of adjacent open grasslands was conducted in Mukuvisi Woodlands, Harare, Zimbabwe. The isolated trees which were sampled were stratified based on the woody species and canopy volume intensity into three classes namely dense, medium and sparse.

Species composition, abundance, species diversity (H'), richness (S) and evenness (E), density per unit area were studied as vegetation attributes. Nitrogen (N), phosphorus (P), potassium (K), pH and moisture content (MC) data were recorded as environmental variables.

Totals of 26 and 7 herbaceous plant species were recorded under isolated trees and their adjacent grassland and clumps of trees respectively. Canopy zones of tree clumps and large *B. spiciformis* isolated trees were dominated by *C. dactylon*, while those of *P. curatellifolia* were dominated by *E. indica*. The most common species found in the open grasslands adjacent to both tree species, in descending order of abundance are *S. pyramidalis*, *H. filipendula*, *H. dissoluta*, and *H. contortus*. More distinct effects on herbaceous plants and soils were recorded under large isolated trees and tree clumps.

Sites close to the tree trunks had more evenly distributed plant species, low species richness and low species diversity, high N, P, K, pH and MC compared to open grassland sites. Significant differences (ANOVA, $P < 0.05$) amongst canopy volume classes and sampling sites were recorded in vegetation and environmental attributes for both woody species' isolated trees. Under both woody species' tree clumps, highly significant differences (ANOVA, $P < 0.05$) were found in H' , S, density per site and P levels.

There was a significant interaction between tree species-canopy volume class and sampling location in influencing herbaceous vegetation structure. Structurally, herbaceous layer was unistratal, sparse and flat while open grassland was bistratal, dense and moderate in height. The significant differences in herbaceous vegetation and soils variables suggest that large well-established *B. spiciformis* and *P. curatellifolia* tree species greatly influence their herbaceous flora and soils.

The two study hypotheses that *B. spiciformis* and *P. curatellifolia* have no major influence on subcanopy vegetation structure and composition as well as the subcanopy soils in Mukuvisi Woodlands were rejected.

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