

The effect of environmental variables on woody plant species distribution: The case of boke salt valley landscape in Borana, Ethiopia

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The effect of environmental variables on woody plant species diversity of Boke salt valley landscape was analyzed using PC-ORD, CANOCO and SPSS statistical software. 22 quadrants with 400m² (20m x 20m) areas were sampled by using transect line along the altitudinal gradient. Woody plant species were collected and identified at species level and, soil samples were collected from four corners and the center of each quadrant, and mixed up to represent the composite soil samples. Soil parameters such as moisture content, organic matter, total N, available P, exchangeable Na, pH-H₂O and E.C (Electrical Conductivity) were analyzed. A total of 24 woody plant species representing 18 genera in 14 families were recorded. Three plant community types were identified in the current study, namely, *Suaeda monoica*, *Maerua triphylla-Acalypha fruticosa* and *Hibiscus aponeurus- Solanum somalensis*. Soil parameters like moisture content, organic matter, total N and available P had significant positive correlation with altitude, whereas exchangeable Na, pH-H₂O, and Electrical Conductivity had negative correlation. The analyzed soil parameters have shown an effect on woody plant species distribution of the study area. In general, in spite of its ecological importance, Boke salt valley landscape is under extensive human exploitations. Hence, participatory management for sustainable uses of the resource should be sought by local communities and the Oromia Regional State to bring about long-lasting solutions.

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