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TROPICAL ECOLOGY

LISBON FEBRUARY 12-16, 2024

TROPICAL ECOSYSTEMS IN A FAST-CHANGING PLANET

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2024 VOL. 26: 202401
DOI: 10.30427/ecotrop202401
ECOTROPICA
INTERNATIONAL JOURNAL OF TROPICAL ECOLOGY

EUROPEAN CONFERENCE OF TROPICAL ECOLOGY 2024

Session 17-P3 - Current trends in tropical African plant ecology

Tree species diversity as a function of environmental conditions in potential seed collection areas in Amhara Region, Ethiopia

Tewachew Worku Kegne[4], Ananda Virgínia de Aguiar[2], Marcos Wrege[2], Valderês Aparecida de Sousa[2], Bruno de Souza[1,2], Maria Teresa Gomes Lopes[3]

[1]Univeridade Estadual Paulista "Júlio de Mesquita Filho", Ilha Solteria, BR, bm.souza@unesp.br
[2]EMBRAPA Florestas, Colombo, BR
[3]Universidade Federal do Amazonas, Coroado, BR
[4]Ethiopian Forestry Development, Bahir Dar, ET

This study aimed to identify the tree and shrub species that occur in the forests of Amhara region in Ethiopia. This survey was carried out to determine possible areas for seed harvest. The sampled species can be used as seeds for both the recovery of degraded areas and the formation of base populations for tree breeding programs. The study was conducted at Fudi Natural Forest in Fagta Lekoma district, Amhara region, northwestern Ethiopia. The points of presence of species were plotted on the USGS SRTM map (GTOPO30) at 1: 250,000 scale (USGS, 2018) using Arc GIS 10.1 software (ESRI, 2011). The maps were elaborated using multiple linear regressions, relating the bioclimatic variables with the numerical models of latitude, longitude, and altitude. The frequencies of occurrence of species and families were compared with local geographic aspects. Fudi Natural Forest in Fagta Lekoma district, Amhara region, northwestern Ethiopia, comprises 32 families and 46 species. The most common families in the northeast, north, northwest, southwest, southeast, and, west regions were Fabaceae (Mimosoideae subfamily), Euphorbiaceae, Celastraceae, and Rubiaceae; Albizia gummifera occurs in greater density in the various sampled regions and is the most dominant. The region presents a high-altitude gradient, which influences the edaphoclimatic attributes and, consequently, the diversity of species. In the northern region, the diversity of species and the size of the trees are lower due to the low water supply, higher solar radiation, and higher temperature.