Diversity and composition of plant species in a communal agroforestry system at Manggatal, Sabah

ABSTRACT

Agrisilviculture, the practise of combining forest trees with crops and fruit trees, is common on smallholder and communal land in Sabah. This research aims to determine the diversity and composition of plant species in a communal rubber-based agrisilvicultural system at Kampung Ratau, Manggatal, Sabah. A 50 m x 200 m plot was established in an old rubber garden mixed with other plants. The plot is divided into 10 m x 10 m quadrats. All trees measuring more than 1 cm dbh, lianas and vines were recorded. Diversity indicated by the Shannon-Weiner index H 'value is 2.72 for all types of plants, 2.25 for trees, and 1.73 for lianas and vines, respectively. The Simpson index (D) is 0.87, 0.78, and 0.68 for all types of plants, trees, lianas, and vines, respectively. The Margalef index (Dm) is 5.69, 3.36, and 2.89 for all types of plants, trees, lianas, and vines, respectively. The dominant tree, liana, and vine species are Hevea brasiliensis (128), Smilax cf. laevis (96), and Lygodium cirinnatum (23). The agroforestry system can support moderately diverse plant species and contains several dominant species.