Tree Vegetation Dynamics on Permanent Plot III-Cikaniki, Mount Halimun Salak National Park

ABSTRACT

Information about the vegetation dynamics of a permanent plot is very important in understanding the changes in environmental conditions, predictions, and management of biodiversity. Mount Halimun Salak National Park (TNGHS), which has the last sub-mountain tropical rainforest on Java, plays a very important role in maintaining biodiversity. Permanent plot III-Cikaniki (1 ha) was first made in 1996 and monitored in 2011. In 2019, monitoring was done to see the dynamics of vegetation in this area. Tagging of trees and measurements of tree diameter (diameter at breast height) were done only for trees with diameters more than 4.8 cm. The data obtained were then compared with the data from 2011 monitoring to see the diversity of tree species in the permanent plot and to calculate the annual recruitment rate, mortality rate, basal gain rate and basal loss rate using the formula developed by Sheil (1995). In addition, microclimate data (temperature and humidity) and edaphic data were measured. The result shows that the tree community in the permanent plot has not changed from 2011 to 2019, which is Castanopsis-Schima. However, there was a change in the Shannon Wiener (H ') diversity index from 3.27 to 3.17. This is presumably because there are differences in the number of individuals per species. The number of individuals in the plot increased from 1293 individuals in 2011 to 1418 individuals in 2019, along with an increase of species richness from 94 species to 104 species. The number of plant families in the plot also changed from 38 families to 37 families. The Cunoniaceae and Pandanaceae families were no longer found in the 2019 monitoring, but the Hamamelideaceae family was found in 2019 in the permanent plot. Over eight years, 225 individuals underwent mortality and 350 trees were recruited. Thus it can be seen that the rate of tree mortality is 2.36% per year and the recruitment rate is 3.48% per year. *Castanopsis acuminatissima* is known to experience the highest number of mortality and recruitment. Aside from that, the total basal area of the vegetation in the permanent plot increased from 39.79 m^2 (2011) to 43.52 m^2 (2019) with a basal loss rate of 1.42% per year and a basal gain rate of 1.69% per year. From the 2019 monitoring, it can be concluded that the forest in the permanent plot III-Cikaniki is in a good condition.

Keywords: dynamics, mortality, recruitment, HSNP, monitoring