

## Komposisi dan struktur komunitas pohon di beberapa Daerah Tepi Taman Nasional Gunung Halimun dan pengaruhnya terhadap tumbuhan bawah

Kusumoantono, author

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### Abstrak

#### **ABSTRACT**

Natural forest in Java is recently limited in the mountain area. Most of these forest areas are legally protected, however these forests are still utilized illegally by people for fuel and sawn wood production. This forest has important role for life; therefore, the sustainability of the original mountain forest ecosystem should be maintained. Gunung Halimun National Park is one of the mountain rain forests having high biological diversity.

The objective of this research is to understand the composition and structure of tree communities in the national park edge area and the influence of trees to the undergrowth species, in such away the degree of forest disturbance and its causes could be identified.

Data collection was carried out between April and September 1995 in five edge national park areas, i.e. Cisarua I, Cisarua II, Legok Heulang, Pongkor and Citalahap: Floristic enumeration was done by transect-plot method. First transect-plots of 500 x 20 meter were established perpendicular to the national park border. Each transect plot was divided by 25 plot of 20 m x 20 in for trees (DBH > 10 cm) enumeration, 25 sub plot of 5 m x 5 m for sapling (2 cm < DBH > 10 cm), and 25 sub plot of 1 m x 1 m for undergrowth plants (diameter < 2 cm).

Sorensen similarity indices show the variation among the five study sites. Three sites Cisarua I, Cisarua II, and Legok Heulng have value more than 50 %, while the similarity of two other sites, i.e. Pongkor and Citalahap is lower, less than 36 %, indicates the different community types. Those variations seem to be resulted from different environmental conditions and degrees of disturbance.

From the five transect-plots of 500 m x 20 m, 89 trees species were recorded, belonging to the 33 genus and 62 families. Citalahap is an area having the highest species diversity, i.e. 48 species, followed by Pongkor (38 species), Legok Heulang (37 species), Cisarua II (35 species), and Cisarua I (33 species). Communities of Cisarua I, Cisarua II and Legok Heulang were dominated by *Tinmannia blumei*, *Syzygium lineatum*, *Schefflera arornatica*, *Schima wallichii*, *Eurya acuminata*, *Quercus pycnan hum*. Based on important index values, it was apparent that the Cisarua I is a consociation of *Vkinmannia blumei*, while Cisarua II and Legok Heulang are association of *Ni,inmantia blumei* - *Syzygium lineatum*. The community in Pongkor area is an association of *Castanopsis acurninatissima* - *Quercus pyriformis*, dominated by *Castanopsis acuminatissima*, *Quercus pyriformtis*, *Schima ~vallic/:* i, *Altingia excelsa*; while the community in Citalahap is an association of *Altingia excelsa* - *Quercus garnelli.fora*, dominated by *Altingia excelsa*, *Quercus gamelkflora*, *Quercus pyrifnrmsis*, *Schima wallichii*, and *Litsea di versifolia*.

Based on the sapling composition in the 125 sub plots of 5 m x 5 m, 68 species were recorded belonging to the 31 genus and 53 families. The most important species of saplings were *Camellia sinensis*, *Macaranga triloba*, *Syzygium lineatum*, *Sci:fera annatica*, *Castanopsis acuminatissima*, *Gyathea contaminans*.

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Within 125 sub plots of 1 m x 1 m, 205 undergrowth species were recorded belonging to 72 genus and 155 families. Based on the life form, it composed of 71 seedlings, 37 shrubs, 2 palms, 14 ferns, 2 orchids, 22 lianas, 58 herbs. Composition of undergrowth plants could be classified into three communities. The first community represents Cisarua I, Cisarua II, and Legok Heulang. This community is dominated by light demanding (intolerant) species, such as *Gleichenia linearis*, *Clidemia hirta*, *Sphaeranthus liulicus*, *Eupatorium intrifolium*1. *Macaranga triloba*, and *Helminthostachys zelylanica*. The second community represents Pongkor area, dominated by shade tolerant species, such as *Castanopsis acuminatissima*, *Maschalacotytnutio cotynrbosus*, *Conunc'linrt diftsa*, *Plectocomia elonngata*, and the third community represent Citalahap area dominated by *Alangium indict's*, *Begonia robusta*, and *Strobilanthes blumei*. The growth of tolerant and intolerant species is influenced by tree crown covers and density. This is proved by Pongkor area which has highest trees density (373 trees/ha), and the lowest is Legok Heulang (190 trees/ha). Species diversity in five research locations is relatively high (3.46), compared with interior forest 2.49 (Hadi, 1994).

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Based on calculation, basal area of trees in five research locations are lower compared with other forest areas in West Java (Yamada, 1975; Yusuf, 1988; Hadi, 1994). This means that trees in five research locations have smaller sizes. This is also indicated by class diameter distribution by which trees having diameter at 10-20 cm on the highest rank in five locations. The analysis of class diameter distribution of the sample trees from Citalahap and Pongkor area shows the normal curve (7 up-side down shaped). This means that the forest in two areas were relatively undisturbed. On the other hand, class diameter distribution from Cisarua I, Cisarua II, and Legok Heulang shows that the class diameter curve is not normal. Most of the diameter > 40 cm has been removed illegally by local communities. From the observation in the field, there are 32 to 88 illegal left-over cut logs per hectare with the diameter more than 25 cm. Based on this fact, it is shown that the forest area in the three locations has been very highly disturbed by local community, mainly with illegal cutting of the trees with diameter > 25 cm. In order to maintain the natural ecosystem in three locations of the Gunung Halimun National Park, the protection system in the park area should be improved.