

VEGETATION STRUCTURE, SPECIES COMPOSITION, AND ORIENTATION OF AGROFORESTRY LAND USE IN LEGI WATERSHED, RAWAPENING, SEMARANG

By:

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ABSTRACT

The upstream of Tuntang watershed area, namely Legi Sub-Watershed, has an important function to maintain ecosystem sustainability. Agroforestry is one of the land use systems that could contribute to economic benefit for local community and sustainability of the watershed ecosystem. Agroforestry system consist of various vegetation that could preserve soil stability and reduce surface runoff. However, the study of vegetation structure and composition in Legi watershed is still limited. This research aimed to determine the structure and composition of vegetation in various elevations of watershed areas and shift of community orientation in the utilization of agroforestry.

The research was conducted in the Legi Sub-Watershed, Tegaron and Sepakung Villages, Banyubiru District, Semarang Regency. Data collected is in random mixture agroforestry on three elevation zones that were low (501-750 m asl), medium (751-1.000 m asl), and high elevations (1.001-1.250 m asl). Data collecting used the purposive sampling method, whereas each elevation was established 10 plots and interviewed 10 farmers as respondents. Vegetation data were analyzed including structure vegetation, important value index, diversity index, Margalef richness index, and dispersion index parameters. The interviews results were analyzed by descriptive qualitative to find out shift of community orientation in the utilization of agroforestry.

The result showed that the vertical structure of agroforestry in Legi Sub-watershed consist of stratum B, C, D, and E. The horizontal structure showed the diameter size affected by the number individual per area. Crown closure of stand at low, medium and high elevations were 61,68%; 68,23%; and 54,58%, respectively. The species diversity in all of the elevation zones was moderate. Species richness on seedling, sapling, and pole categorized as low level. Meanwhile, the species richness of the tree was categorized as moderate. Plant species distribution on all of elevations area was categorized as a random and clumped distribution pattern. Moreover, changing in species selection in agroforestry is one of effort to increase the forest productivity and the economic value of their private forest. The land use management of private forest in the Legi Watershed area was based on economic orientation which gradually gives rise to an ecological orientation.

Keyword: watershed, agroforestry, vegetation, species, orientation

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STRUKTUR VEGETASI, KOMPOSISI JENIS, DAN ORIENTASI PEMANFAATAN AGROFORESTRI DI SUB DAS LEGI, RAWAPENING, SEMARANG

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INTISARI

Kawasan hulu DAS Tuntang yaitu Sub DAS Legi, mempunyai peranan penting untuk menjaga kestabilan ekosistem agar tidak terdegradasi. Salah satu pola pengelolaan lahan adalah dengan sistem agroforestri, yang dapat memberikan manfaat ekonomi bagi masyarakat dan berfungsi untuk menjaga kelestarian ekosistem DAS. Pola agroforestri mempunyai vegetasi penyusun yang beragam, sehingga dapat memberikan perlindungan tanah dan mengurangi aliran permukaan. Akan tetapi, kajian vegetasi pada berbagai elevasi di Sub DAS Legi belum pernah dilakukan. Untuk itu, penelitian ini bertujuan untuk mengetahui struktur dan komposisi agroforestri, serta pergeseran orientasi masyarakat dalam pemanfaatan di Sub DAS Legi.

Penelitian dilakukan di Sub DAS Legi, Desa Tegaron dan Desa Sepakung, Kecamatan Banyubiru, Kabupaten Semarang. Pengambilan data dilakukan pada lahan agroforestri berpola *random mixture* di tiga zona elevasi, yaitu yaitu elevasi rendah (501–750 m dpl), sedang (751–1.000 m dpl), dan tinggi (1.001–1.250 m dpl). Pengambilan data menggunakan metode *purposive sampling*. Setiap zona elevasi dibuat 10 petak ukur dan mewawancarai 10 petani pemilik lahan sebagai responden. Analisis data vegetasi meliputi struktur vegetasi, indeks nilai penting, indeks diversitas, indeks kekayaan Margalef, dan indeks dispersi yang divisualisasikan dengan *software* SExI-FS. Hasil wawancara dianalisis secara deskriptif kualitatif untuk mengetahui pergeseran orientasi pemanfaatan agroforestri.

Hasil penelitian menunjukkan struktur vertikal agroforestri di Sub DAS Legi terdiri atas stratum B, C, D, dan E. Struktur horizontal menunjukkan ukuran diameter batang dipengaruhi oleh jumlah individu per hektar. Penutupan tajuk tegakan pada elevasi rendah, sedang, dan tinggi, masing-masing 61,68%; 69,23%, dan 54,58%. Keragaman jenis pada ketiga zona elevasi termasuk kategori sedang. Kekayaan jenis pada tingkat semai, sapihan dan tiang, termasuk kategori rendah. Sementara itu, kekayaan jenis pada tingkat pohon termasuk kategori sedang. Jenis tanaman di ketiga zona elevasi memiliki pola distribusi acak dan mengelompok. Selain itu, perubahan pemilihan jenis dalam agroforestri merupakan upaya untuk meningkatkan nilai ekonomi dan produktivitas lahan tegalan. Pemanfaatan lahan tegalan di Sub DAS Legi didasarkan pada orientasi ekonomi yang secara perlahan memunculkan orientasi ekologi.

Kata kunci: DAS, agroforestri, vegetasi, jenis, orientasi

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