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Tree Growth Dynamics of Two Natural Secondary Gallery Forest Stands in West Yen Tu Reserve, Northeast Vietnam

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Abstract

The gallery forests are described as the generally narrow patches of woodland running along edges of watercourses and banks of lakes. The forest type forms an important habitat for terrestrial fauna and serves as a food source for aquatic fauna. Furthermore it has a function as buffer zone in controlling water supply and erosion. Despite the important ecological role in water protection as a shelter for associated fauna, in bio-diversity conservation, in the contention of erosive processes for the region, gallery forests in Northeastern Vietnam are continuously degraded by anthropogenic activities. Thus, promoting the *in-situ* bio-diversity conservation needs to be intensified and associated with multi disciplinary knowledge. Whereby, not only vegetation composition, structure and dynamics of the gallery forests, but also their reaction toward the site condition were elaborated. Because of the lack of basic knowledge about the study areas tree ring analysis is meaningful for describing and interpreting the stand and tree dynamics and development.

In two natural secondary gallery forest stands in Northeastern Vietnam, the inventory was conducted on transects (10 × 50 m) along two rivers, which are located in the watershed area of Luc Nam river belong to the West Yen Tu reserve. In 40 transects with total area of two hectares all the trees with diameter at the breast height (DBH) over five cm are included. For tree rings analysis five dominant tree species in two study sites (*Erythrophloeum fordii* OLIVE., *Castanopsis indica* A.DC, *Pygeum arboreum* ENDL., *Lithocarpus ducampii* A. CAMUS and *Mischocarpus oppositololius* (LOUR) MERR.), which show distinct annual rings, were selected. 70 trees were cored at the height of 1.3 m with increment corers and analysed using standard dendrochronology methods in Göttingen. The objectives of this research is to investigate the relation between annual tree rings and precipitation and growth dynamics of dominant tree species.

Keywords: Forest dynamics, gallery forest, silviculture, tree rings analysis, Vietnam