

Seasonal Changes of Functional Groups in Coleopteran Communities in Pine Forests¹

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ABSTRACT

Fauna assemblages reflect their habitat relating to ecological function in an ecosystem. The functional groups are concerned with how a resource is processed by different species to provide a specific ecosystem service or function. We elucidated seasonal changes of coleopteran functional groups in forests, and evaluated their ecological roles related to available food resources. Coleopteran communities were collected weekly or biweekly using Malaise traps at nine study sites in Japanese red pine forests in Korea from late June to September 2005. Compositions of the functional groups were compared at the different sites and at sampling times with respect to taxa richness and abundance. Cluster analysis and non-metric multidimensional scaling were used to characterize spatial and temporal changes of functional groups. Herbivores and dead/live wood feeders regulating primary production in the pine forests were the dominant coleopteran groups in July, followed by detritivores and predators that dominated from July to August, resulting from the accumulation of detritus. Then, fungivores became dominant due to increased fungal biomass in the forest. Seasonal changes of coleopteran functional groups shifted from regulators of primary production to regulators of decomposition, reflecting their available food resources. In addition, abundance of detritivores and predators were dependent on total abundance of coleopterans, suggesting that these two groups reflect their habitat condition.

Keywords : *Coleoptera* diversity, *Functional group*, *Coleoptera* community

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