

秦岭西部不同发育阶段日本落叶松林凋落物层大型土壤动物群落特征

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Community Characteristics of Soil Macrofauna in Forest Floors of *Larix kaempferi* Sstands Ddifferent in Ddevelopment Stage in West Part of the Qinling Mountains

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摘要

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摘要 以秦岭西部小陇山林区不同发育阶段的日本落叶松(*Larix kaempferi*)林为研究对象,探讨不同发育阶段日本落叶松林凋落物层的大型土壤动物群落特征。结果表明,10 a日本落叶松林土壤动物密度和类群丰富度均显著高于20和32 a日本落叶松林,而32 a日本落叶松林土壤动物群落密度又显著高于20 a日本落叶松林。不同发育阶段日本落叶松林土壤动物群落的营养功能群组成也发生了明显变化,随栽植林龄的增加,捕食性类群的比例先增加后降低,而腐食性+杂食性类群的比例先降低后增加,植食性类群的比例呈增加趋势。不同发育阶段日本落叶松林的正蚓科、线蚓科、倍足纲、蛭科、步甲科、蚁甲科、双翅目幼虫和蚁科土壤动物类群密度存在明显变化,进而改变了大型土壤动物群落结构和营养功能群组成。凋落物层土壤动物对不同发育阶段日本落叶松林的环境变化十分敏感,可以用来指示林下土壤环境变化。

关键词: 秦岭西部 日本落叶松林 发育阶段 大型土壤动物 群落结构

Abstract: Japanese larch (*Larix kaempferi*) was introduced into China in the 1970s and has been planted in many parts of the country ever since, but its impact, as an alien species, on soil biodiversity is poorly documented. Field investigations were carried out in a Japanese larch plantation with stands different in development stage to explore community characteristics of the soil macrofauna community in forest floor of the plantation in the western part of the Qinling Mountains. Results demonstrate that in terms of density and richness in class group of soil macrofauna community in forest floor, the stands displayed an order of 10a old > 32a old > 20a old. Significant changes also occurred in composition of the nutritional function group of the macrofauna. With rising age of the stand, the predator group increased first and then decreased in proportion, while the group of saprophagous+omnivores did reversely and the group of herbivores increased all the way. Densities of the groups of Gastropoda, Lumbricidae, Diplopoda, Lithobiomorpha, Pselaphidae, Staphylinidae, Carabidae, Curculionidae, Diptera and Formicidae varied sharply between stands different in age, thus triggering changes in structure and in composition of the nutritional function groups of soil macrofauna. Soil macrofauna in the forest floor are very sensitive to changes in environment with the age of the Japanese larch stands and hence can be used as indicator of changes in soil environment under forests.

Keywords: western part of the Qinling Mountains *Larix kaempferi* development stage soil macrofauna community structure

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