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Differences among Chestnut Hybrids and Their Litter Fauna

The composition of soil is determined by plants and their organic waste that has been broken down and recycled throughout the ecosystem. This process is controlled by bugs within the soil, called litter fauna. The analysis of litter fauna under the American Chestnut tree species gives details on the effects of that plant on the environment. The American chestnut has been functionally extinct since the introduction of the Chinese Chestnut blight to America in 1910's. The American Chestnut used to dominate ecosystems and drive industry related to timber and nut harvest. Hybridization of the different American and Chinese Chestnut tree species has changed their morphology over the years in attempts to create a blight resistant hybrid. Scientists are unaware of the effects of the absence of American chestnuts and the emergence of pollinated hybrids on soil type and presence of litter fauna. Litter fauna diversity and population can help distinguish the health of an ecosystem therefore I hypothesized that abundance of individuals of non-Acarina taxa differs among hybrid tree types. Litter was collected under American Chestnut trees, Chinese Chestnut and two of their hybrids. The fauna was extracted using a Berlese funnel and analyzed. I concluded that there is no functional difference in non-Acarina fauna samples among the hybrids and their pure-bred counterparts. This indicates that the reintroduction of American Chestnuts and their hybrids into the ecosystem will not negatively affect the soil and its litter fauna.