The assumption of our study is to recognize complicated interactions of invasive tree species, i.e. black cherry (Prunus serotina), northern red oak (Quercus rubra) and black locust (Robinia pseudoacacia) with their native competitors and habitats they colonize. We will focus on decomposition processes of their litter (and accompanying phenomena), which as one of the main biogeochemical processes in nature, may be a tool that invading species use to change the environment to favour their own ecological success. The most important research questions are: 1. To what extent do leaf litter decomposition rates of particular tree species differ among various stand types? The body of studies on decomposition allows development of general theories. One of the most examined principles is the home-field advantage theory, where many authors stated that decomposition of litter is faster beneath the canopy of parent trees. However, there is some evidence that in mixed tree stands, decomposition rates may be even higher, in accordance with the matrix quality interaction hypothesis that decomposition rates of leaves are higher in relatively "richer" habitats (in terms of abundance of soil organisms or fertility) in comparison with "poorer" sites. Moreover, admixtures of various litters may affect decay rates of specific litter of investigated species. A recent study confirm this assumption, however, the magnitude of differences varied between particular tree species, which was probably connected with various morphological and physicochemical structures of their leaves, resulting in differential palatability for decomposers and susceptibility to mechanical fragmentation. 2. How do interactions between amounts of annual litterfall, nutrient contents of fallen leaves, and rates at which nutrients are released by decomposition for various tree species in various stand types, affect nutrient pools available in ecosystems they occupy? Nutrient pools available for plants in specific ecosystems are not directly connected with nutrient contents in fallen leaves and the mass of annual litterfall. Indeed, all these resources will reach the soil, however, only part of them will become soluble in soil water and available for uptake and growth by plants. Based on previously published data we are able to place tree species into groups with high and low rates of decomposition and release of nutrients. Nevertheless, exceptions could appear in various habitats. 3. How and to what extent do invasive alien or expansive native tree species utilize their litter properties such as amount of litter produced, decomposability of litter and nutrient wealth? Alien tree species, especially invasive ones, are known as habitat transformers; their generally high ecological plasticity enables them to colonize (invade) new habitats and ecosystems, making them a threat to local/native flora. There is some evidence that invasive species can modify habitats to enhance their own ecological success. 4. Is the ecological success of natural regeneration somehow connected with the litter features? It is possible that leaf litter characteristics of invasive tree species influence their ability to grow to large sizes in the forest, and that litter characteristics of various native species influence the success of invasive tree species. To find the answers to these questions we designed a full-factorial experiment based on species-specific litterfall, its decomposition rates and ecological success of natural regeneration of invasive and native species. Although previous studies examined decomposition of leaf litter of invasive tree species, there have been no studies that cross referenced this with growth of seedlings and saplings of invasive tree species. Thus, we hope that our experiment will provide a basis for characterizing mechanisms of habitat alteration by invasive species that increase the probability of primarily their own ecological success. Our multi-faceted approach will be a step forward in widening knowledge about the biology of aliens in newly colonized territories and about their relationships with competitors and habitats. This could be the basis for further research by scientists and practitioners to discover mechanisms and practical approaches for limiting the spread of invaders.