

Abstract

Biological invasions are one of the most important threats to global biodiversity and they were also found to negatively affect some bird species. Despite relatively large number of scientific studies dealing with the impacts of invasive plants on bird communities, their results are inconsistent, especially it is not clear how birds respond to increasing levels of expansion of invasive species in native species stands. Moreover, bird responses to plant invasions seem to depend on the ecological characteristics of individual bird species. This study contributes to elucidation of this problem; I investigated the impacts of black locust (*Robinia pseudoacacia*) invasion on bird communities in three types of forest stands with different levels of invasion: in stands containing solely the native oak (*Quercus* spp.), in partially invaded stands with different proportions of black locust and oak (mixed stands) and in pure black locust stands. Previous studies that examined birds in pure oak and pure black locust stands have found that they differ markedly in vegetation structure, but not in the total number of bird species. However, habitat specialists were associated with the oak stands, while generalists with the black locust stands. Therefore, I predicted that (1) the total species richness will be highest in mixed stands with medium proportion of black locust, (2) habitat specialists will be closely associated with the native oak stands (3) habitat generalists will mainly be associated with the mixed and black locust stands, (4) invasive black locust will affect birds mostly due to its altered vegetation structure. I surveyed bird occurrence and characteristics of vegetation structure in 32 study plots. Results obtained by using linear models showed that the majority of my predictions was supported; (1) the total bird species richness was highest in the mixed stands, lower in the black locust stands and the lowest in the native oak stands, (2) generalists (measured by their species richness) favoured the mixed stands the most and then the black locust stands, (3) both aforementioned patterns were significant only without factoring out the effect of vegetation structure, and if it was included in the models then the tree origin (exotic or native) was not significant anymore. Prediction regarding the specialists was not supported, probably due to the limited sample size. These results suggest that the invasive black locust is not a particular threat for birds if present in forest stands together with the native tree species and its heterogeneous vegetation structure may actually attract many birds, while the native trees most likely provide food sources for birds at the same time. On the other hand, pure oak stands, at least the surveyed ones represented by the managed forests, are not very attractive for birds, probably due to their uniform structure and/or high shading. Furthermore, it is obvious that majority of the bird species recorded does not need a large area of the preferred

tree species (i.e. oak or black locust) and are primarily influenced by vegetation structure, whose greater heterogeneity may provide better breeding opportunities or higher food availability.