

Abstract

Plant-soil feedback is an important mechanism in plant communities affecting their species composition. Understanding plant-soil feedback is crucial for describing the interactions between plant communities and their soil communities. The effects of plant-soil feedback can be positive, negative or neutral and because of these changes plants are either coexisting or competing. Plant-soil feedback is often studied within plant succession, plant invasion and plant dominance in a plant community. In these cases, the nature and strength of influence of each species is studied. Despite the large number of previous studies on plant-soil feedback, very little is known about the temporal and spatial changes of the intensity of plant-soil feedback and the intraspecific variability in plant-soil feedback. The aim of my work was to observe the temporal changes in the plant-soil feedback of a species growing in soil which was conditioned by the same or other plant species. Another goal was to explore spatial changes in plant-soil feedback. The last objective was to test differences in the intensity of plant-soil feedback among different genotypes of one species.

The results of my work demonstrated that the intensity of intraspecific plant-soil feedback of *Rorippa austriaca* is negative and increases with duration of the conditioning phase. Opposite results have been detected in the case of *Rorippa austriaca* growing in the soil conditioned by *Agrostis capillaris*. In this case, the feedback is positive and its intensity increases with duration of the cultivation phase. Another experiment exploring spatial changes in the intensity of plant-soil feedback did not show any significant results. The last experiment demonstrated significant differences in the intensity of plant-soil feedback of different genotypes of the same species. Plants responded differently to soil conditioned by different populations. Response to a given soil did not differ between genotypes, but each genotype grew differently.