

## **Abstract**

This thesis presents the plant-soil feedback mechanisms in the time horizon of the primary succession specified by own research performed on the substrate of Velká podkrušnohorská výsypka. The thesis focuses on the early succession species – *Fabaceae* and their typical competitors – *Poaceae*. It indirectly follows on from the thesis of Petra Zedníková – The growth of leguminous plants during primary succession in post-mining sites. The *Fabaceae* utilize the cooperation with nitrogen-fixating Rhizobia, which, along with arbuscular mycorrhiza that is distinctive for its yield of phosphorus along with other scarce substances, allows even little fertile environment to be colonized. From there on however the *Poaceae* are competitively more successful, therefore a different effect had been expected on *Fabaceae* compared to *Poaceae*. However, that has not proven to be the case and both *Fabaceae* and *Poaceae* fared worse in soil trained by *Fabaceae* growth compared to naïve soil. Since there haven't been any changes in the chemical properties of the soil, the changes had been caused by the biotic environment. The growth trends in time that differed between the first and the second generation can more likely be attributed to the chemical changes in the soil, as these do correlate with the soil age, especially phosphorus. The differences between the first and the second generation of plants are more evident on the spontaneously evolving soils compared to those that had been restored and thus the nutrient flows in them had been accelerated.

**key words:** plant-soil feedback, legumes, *Fabaceae*, grass, competition, restoration