Czech Academy of Agricultural Sciences

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Soil-forming effect of Grand fir (*Abies grandis* [Dougl. ex D. Don] Lindl.)

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[fulltext]

The aim of the study is to evaluate the role of the Grand fir (*Abies grandis* [Dougl. ex D. Don] Lindl.) as a soil-improving species in the area of the University Training Forest in Kostelec nad Černými lesy, Jevany district. The state of humus forms in the stand part with Grand fir was compared with the mature Norway spruce (*Picea abies* [L.] Karst.) without regeneration, with young beech (*Fagus sylvatica* L.), Norway spruce (*Picea abies* [L.] Karst.) and oak (*Quercus* spp. L.) stands (all of pole stage). The site is characterized as 4P1 – acid oak-fir site with *Luzula pilosa*, the geological bedrock is formed of cretaceous sandstone with loess overlays, the soils are Luvisols, the terrain is flat at the altitude of 420–440 m a.s.l. The humus form samples (L, F, H, Ah horizons) were taken in 4 replications, quantitatively for the holorganic layers. The dry mass amount and total nutrient contents were analyzed for holorganic horizons, the basic pedochemical characteristics (pH, soil adsorption complex characteristics, exchangeable

acidity and exchangeable nutrients) were determined for all horizons. The results confirmed marked and positive effects of the Grand fir litter on the surface layer characteristics. This tree species supports the litter of good composition, transforming easily and forming humus forms of higher quality compared to coniferous as well as studied broadleaved species.

Keywords:
forest ecosystems; Grand fir; introduction; humus forms; humus accumulation; soil chemistry; biological amelioration

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