Factors influencing growth layer form in branches of four contrasting temperate forest tree species.

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REGULAR ARTICLE

Can soil acidity and light help to explain tree species effects on forest herb layer performance in post-agricultural forests?

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Abstract *Aims* Tree species affect herb layer species through their effects on soil quality and light regime but their relative importance and interactions are insufficiently known.

Methods Pot experiment with soil taken from stands planted with tree species with contrasting effects on soil acidification, two light regimes and six forest perennials. *Results* The survival or growth of *Mercurialis perennis*, *Lamium galeobdolon*, *Anemone nemorosa* and *Primula elatior* was lower in the acid *Alnus* soils than in the less acid *Fraxinus* soils. By contrast, the acid tolerant *Convallaria majalis* and *Dryopteris dilatata* were barely affected by tree species. Light conditions had less impact than soil chemistry and did not compensate for unfavourable soil conditions. Ca and P concentrations increased in plants grown in *Fraxinus* soils. The Mg and Al shoot/root ratios of respectively one and two of the acid tolerant species were elevated in the most acid soil. *Conclusions* Tree species effects on forest perennials are mainly explained by increased Al concentrations under acidifying species. Changed plant concentrations and allocation are likely associated to Al antagonisms. We found no light compensation for the soil effect on the studied species. However, light alters the plant nutrient concentrations and allocation which may suggest an indirect effect.

Keywords Overstory-understory interactions · Plant nutrient concentrations · Al toxicity · Soil acidification · Ecological compensation · Post-agricultural forest

Introduction

Many regions poor in forests, like in north Western Europe, have launched afforestation programmes to halt

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Aboveground biomass, growth and yield for some selected introduced tree species, namely Cupressus lusitanica, Eucalyptus saligna, and Pinus patula in Central Highlands of Ethiopia

Some tree species can survive with less annual precipitation. Beta-diversity in temperate and tropical forests reflects dissimilar mechanisms of community assembly. Winter conditions make finding sources of liquid water and transporting water a challenge.

Biotic and Abiotic Factors

In some areas, in eastern North America and parts of Northern Europe, farming is less economically viable than in other parts of the temperate region, leading to reforestation in these areas. The highest aboveground biomass 184. On the contrary, the low disturbance inside Pinus patula is likely due to a lack of knowledge for utilization and the site is located near by the main road and resulted in being easily seen by the guards and passers-by.

The Four Main Layers Of A Rainforest

The magnesium molecule is bonded to many molecules of hydrogen, carbon, oxygen, and nitrogen. Seed treatment is live in symbiosis with mycorrhiza fungi. Thus, herb-layer species can contribute greatly to the litter component of the forest ecosystem litter fall in , even though there may be relatively little herb-layer vegetation at any point in time biomass in.

Species

Other tree species are more tolerant of shade, such as sugar maple, beech, balsam fir, hemlock, and cedar.

Species

The relative importance of interactive modular response and branch autonomy may differ depending on the status of plants, such as individual age, environmental conditions, and the timing of the measurements.

Modeling qualitative and quantitative elements of branch growth in saplings of four evergreen broad

Compare growth rates of plants. Dramatic loss in vegetation from animal consumption increases pressure on woody tissues, especially foliage, buds, and bark. These numbers represent conservative estimates for herbaceous-layer richness, because most of the data in are derived from plot-based sampling, which generally underestimates richness relative to inventory sampling.

Tree Physiology

Tamarack a needle-bearing tree is the last. The slight increase in carbon stock in 2017 is likely due to increasing disturbance illegal cutting and litter fall removal.

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