

The Effects of Stand Density, Standards and Species Composition on Biomass Production in Traditional Coppices

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Abstract : Traditional coppices and coppice-with-standards were widely used throughout Europe and Asia for centuries but were largely abandoned in the second half of the 19th century, especially in central and northwestern Europe. In the last decades, there has been a renewed interest in traditional coppicing for nature conservation and most often, for rapid woody biomass production. However, there is little information on biomass productivity of traditional coppices and what affects it. Here, we focused on the effects of stand density, standards and tree species composition on sprout biomass production in newly restored coppices in the Czech Republic. We measured sprouts and calculated sprout biomass 7 years after the harvest from 2013 resprouting stumps in two 4 ha experimental plots. Each plot was divided into 64 subplots with different densities of standards and sprouting stumps. Total sprout biomass declined with increasing density of standards, but the effect of standards differed significantly among studied species. Whereas increasing density of standards decreased sprout biomass in *Quercus petraea* and *Carpinus betulus*, it did not affect sprout biomass productivity in *Acer campestre* and *Tilia cordata*. Sprout biomass on stand-level increased linearly with an increasing number of sprouting stumps and we observed no leveling of this relationship even in the highest densities of stumps. We also found a significant shift in tree species composition with the steeply declining relative abundance of *Quercus* in favor of other studied tree species.

Keywords : traditional coppice, coppice with standards, sprout biomass, forest management

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