

Original article

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## Course of Stand Growth and Yield in the Pine Forest Types of the Kologrivsky Forest Nature Reserve

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**Abstract.** The purpose of the study is to study the course of growth of forest stands of the main forest-forming species in pine forest types using the example of the Kologrivsky Forest Nature Reserve (Kostroma Region). The object of the study was the stands of pine, birch, aspen and gray alder growing in pine forest types (lichen, lingonberry, sorrel, bilberry and long moss) of the Kologrivsky Forest Nature Reserve. To study the course of growth, materials from the forest inventory of 1998 and 2009 were used. In total, data on 3934 elements of dendrocenoses were analyzed. The generally accepted empirical regression models were used to analyze the experimental data. In the study, regression equations were obtained that describe changes in average heights and diameters, wood stocks from the age of the main forest-forming species in pine forest types of the Kologrivsky Forest Nature Reserve. It was revealed that the best forest growth effect in terms of the stand indicators under consideration is manifested in the type of forest – oxalis pine forest, and the worst – in lichen and long-moss pine forests. At the same time, for all considered tree species, a general pattern is manifested that in the best forest growing conditions, forest stands are less durable than in the worst ones. Based on the obtained regression dependencies, tables of the course of growth can be compiled by calculating the basal areas, the number of trees, the current and average changes in stocks according to the methods generally accepted in forest measurement and inventory. Such tables can serve as a basis for predicting changes in the stand indicators of the totality of forest stands in the forest area of the Kologrivsky Forest Nature Reserve.

**Key words:** forest stands course of the growth, Kologrivsky Forest, nature reserve, forest type.

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