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Condition of Wood Species and Reproduction Ofoak Forest in Zone of Forest Steppe

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In the article there were considered aspects tracking the history of oak stands' degradation on the territory of Russia, as well as key factors for degradation of oak trees crowns and transformation of oak forests into deciduous formations with no oak participation in the naturally forming plantations. Two main tasks are discussed in the article: presentation of experimental evidence for oak degradation and transformation of oak forests into mixed deciduous plantation with minimal oak participation in the stands composition or with its zero participation; provision of information to forestry experts and organizations on the researches made by the Forestry Institute under the Academy of Sciences. Those researches deal with the development of a system targeted at the intensive reproduction of highly productive oak plantations which would allow to grow trees stands having 8–10 oak species in their composition and to provide a possibility to vary plantations' structure depending on the their intended use. There was presented a new technique of assessing trees conditions considering development of secondary crowns. There was also presented experimental data (appraisal by points) on the grades of trees weakening (crown degradation) for the core forest shaping species in the mature and over mature stands of natural and artificial origin. Oak trees possess lower weakening indices comparing to other species – ash trees, Bosnian maple, common maple, and linden which is associated with progressive rate of oak species' degradation. The article specifies a change to the composition formula of the natural origin plantation over the period of 130–140 years starting from 10 oak trees species to their absence in the plantation formula. The author estimates a degree of association between the number and thoroughness of tending fellings (forming artificial oak stands) and presence of oak in the composition of the plantation's first layer. This association can be estimated as a high one and almost functional: $r = 0,9$ when $m_r = 0,04$ and $t = 22,5$. The article introduces an intensive method of oak forests reproduction representing a continuous cycle of agro technical and mechanized treatment. As the result of such treatment there will be formed a single-storied, high-bonitat, highly-marketable oak stand with 8–10 of oak species in its composition.