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Impact of a Site Condition Type and Geographic Location of Populations on the Degree of Introgressive Hybridization of Spruce in the Vologda region

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The paper provides assessment results of how a site condition type and geographic location can influence the degree of introgressive hybridization of spruce in the Vologda region (evidence from bilberry and wood sorrel spruce forests located in Kichmengsko-Gorodetsky, Totemsky and Cherepovetsky Districts). The study employed research methods proposed by L.F. Pravdin based on distinctive features put forward by I.A. Korenevto holistically assess the degree of introgressive hybridization of Siberian and European spruce. Various types of site conditions in all of the populations in question show absence of substantial differences in mean values of the

majority of morphometric cone parameters. Totemsky and Cherepovetsky populations turned out to be similar in mean sizes of cones. It was found that almost all morphometric cone parameters of the study populations in both types of forests in question vary approximately at the same level. However, Kichmengsko-Gorodetsky and Totemsky populations are characterized by a low level of variability in the length and width of seed scales in both types of forests, whereas in Cherepovetsky population variability of this feature is mean. The study shows that wood sorrel spruce forests are dominated by specimens with prevailing features of Siberian spruce and with equally weighted features of Siberian and European spruce. The results of the research proved that in the north of the Russian plain occurrence of the features of Siberian spruce increases when moving from the south to the north and from the west to the east. It was noted that in Totemsky population, located in the vicinity of the Sukhona river, the degree of hybridizationis higher than that in Kichmengsko-Gorodetsky population located next to it. It was concluded that the degree of hybridizationof European and Siberian spruce populations is connected to their geographic location and site conditions.It is recommendedto use the results of the study in selective seed farming. In Totemsky and adjacent north-eastern districts of the Vologda region when selecting superior trees preferences should be given to hybrid forms of spruce with equally weighted features of Siberian and European spruce. In Kichmengsko-Gorodetsky and Cherepovetsky districts it is essential that specimens of hybrid spruce with prevailing features of Siberian spruce and hybrid spruce with equally weighted features of Siberian and European spruce be selected.