DYNAMIC OF TREE POPULATIONS AND HORIZONTAL STRUCTURE OF THE OLD-GROWTH NEMORAL HERB BROAD-LEAVED FOREST WITH DOMINATION OF QUERCUS ROBUR AND TILIA CORDATA (ACCORDING TO THE RESULTS OF LONG-TERM MONITORING, PENZA REGION)

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Abstract. A forecast for the development of old-growth nemoral herb broad-leaved forest with domination of Quercus robur and Tilia cordata in the Inselsky forest range (the Penza region) is given in the article. The community belongs to the association Mercurialo perrenis-Quercetum roboris Bulokhov et Solomeshch 2003 according the Braun-Blanquet floristic classification. Long-term monitoring observations (28 years) on a permanent sample plot were the basis of the forecasts. The ontogenetic state of tree species coenopopulations was analyzed and maps were produced for placing biogroups of trees of different age. The study showed that the existing horizontal structure (mosaic) of the studied community ensures the reliable development of only shade-tolerant species (Acer platanoides, Tilia cordata, Fraxinus excelsior, Ulmus glabra). The available light regime is not sufficient for development of light-demanding species (Quercus robur, Populus tremula). The small number of oak individuals in the population and the death of its undergrowth make the position of Quercus robur very vulnerable in modern communities. The incompleteness of tree species composition and the inability to restore it with the existing structure of the community make it possible to characterize the broad-leaved forest as a quasi-climax. The transformation of this forest into the climax is impossible without human intervention. Reducing size of mosaic prevents the formation of uneven-aged populations of all potential tree species in the future.

Key words: old-growth broad-leaved forest, population monitoring, forecast of community development, climax, Quercus robur.