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MICROSITES AND MAINTENANCE OF FLORISTIC DIVERSITY OF TALL-HERB SPRUCE FOREST (ON THE EXAMPLE OF THE RYZHUKHA SWAMP NATURAL MONUMENT, BRYANSK REGION)

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Abstract. Studies were carried out on the area of the Ryzhukha Swamp Natural Monument (the Bryansk region). Unique communities – tall-herb spruce forests – are preserved in this swamp. A tall-herb spruce forest is the final stage (climax) of the succession of black alder swamp forest for the area of *Picea abies* and *Alnus glutinosa*. However, tall-herb spruce forests have almost completely disappeared due to felling, melioration and peat extraction. Geobotanical descriptions indicate that vascular plant species richness in tall-herb spruce forests is two or three times higher than in black alder forests. Mapping of the soil cover showed that this is due to the developed system of microsites in the tall-herb spruce forest. A significant proportion of the organic soil area (80 % or more) is covered by microsites of biogenic origin: treefall mounds, sedge tussocks, fallen logs, black alder hummocks, substrate composed of the surface tree roots and elevated base of trees. These biogenic microsites are characterised by a lower moisture excess, better aerated substrate, and also, less frequent flooding during high water in comparison with wet organic soil. Ecologically contrasting microsites are formed as a result of plant life and death. This ensures the joint existence of different ecological-coenotic species group in the community. Wet peat soils, treefall pits, sedge tussocks and fallen logs are favourable to species of nitrophilous, moist-meadow and water-marsh ecological-coenotic groups. Black alder hummocks, substrate composed of the surface roots and elevated base of trees are suitable for species of nemoral and boreal groups. Studies have shown that the system of microsites is necessary for the existence of rare species in the community. Thus, *Cypripedium calceolus* grows mainly on substrate composed of the surface roots and on elevated base of trees; *Neottia nidus-avis*, on elevated base of trees; *Corallorrhiza trifida, Dactylorhiza fuchsii, Ligularia sibirica, Listera ovata* and *Malaxis monophyllos,* on substrate composed of the surface roots; *Daphne mezereum*, on black alder hummocks and on substrate composed of the surface roots; *Melandrium dioicum*, on sedge tussocks and fallen logs. Due to favourable ecological conditions, the species richness in biogenic microsites is about two times higher than in wet organic soil. Microsites of biogenic origin are related. Thus, fallen logs are the basis for the formation of alder hummocks and sedge tussocks, as well as for substrate composed of the surface tree roots. In turn, sedge tussocks create conditions for the development of alder hummocks. Elevated base of trees (multi-trunk formations) of other species are formed later on the alder hummocks. Aging trees and treefalls of spruce, alder and other tree species are the next generation of fallen logs. Thus, the normal turnover of generations in tree populations is a condition for maintaining the structural and species diversity of tall-herb spruce forests.

Key words: tall-herb spruce forest, forest swamp, species diversity, ecological-coenotic groups, biogenic microsites, fallen logs, sedge tussocks, black alder hummocks, tree hummocks, treefall pits.