

TAXONOMIC STRUCTURE OF THE PLANT COMMUNITIES OF TREE PLANTATIONS AT THE IRON ORE DUMPS IN KRYVYI RIH CITY

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The development of woody-shrub vegetation in dump ecotopes for a long time was considered as the perspective of phytorecultivation problems. As a result of preliminary studies of the Department of Optimization of Technogenic Landscapes of the Kryvyi Rih Botanical Garden of National Academy of Sciences of Ukraine, it has been established that optimal conditions for its development are created in the dump ecotopes, firstly, at a certain level of moisture and mineral nutrition, which corresponds to a range of a number of hygrotopes: from dry to fresh (clays), from dry to wet (loams), from wet to very wet (sands), from raw to wet (gravel and screes) and wet (pebbles and gravel). Secondly, the formation of spontaneous wood and shrub phytostructures is determined by local ecotopic conditions, which are created by the accumulation of large stone blocks in all components of the relief, and also due to the presence of rock fragments in microdepressions. At the present stage of floristic development, the application of the structural and comparative method of studying flora gives a possibility to fully identify the patterns of the organization and functioning of floristic systems and their elements, to model and predict their changes. We studied the taxonomic structure of plant communities of spontaneous woody vegetation on five iron ore dumps in Kryvyi Rih: dumps № 3 and № 7 of Hleyuvatsky quarry, the one of the mine «Bolshevik», the dump «Eastern wall», the dump of Pershotravnevyi quarry PJSC «Northern Mining Enrichment Plant». 208 geobotanical releves were made in accordance to the generally accepted methods. Species names of higher plants are given in accordance to the nomenclature checklist of S.L. Mosyakin and M.M. Fedoronchuk [1999]. The analysis of the floristic composition of woody plant groups developing spontaneously on the iron ore dumps of Kryvyi Rih allowed to ascertain that the species composition of vegetation on five iron ore dumps varies insignificantly. The largest number of species, families and genera in the groups of tree plants was noticed on the dump of the «Pershotravnevyi of PJSC» Northern Mining Enrichment Plant» (115, 90 and 35, respectively), and the smallest – on the dump «Eastern wall» (78, 62 and 25, respectively). Considerable number of species on the dump of Pershotravnevyi quarry can be explained by large number of ecological niches, which are caused by long-term formation and variety of conditions, the presence of localities of moisture on the bench slopes and sites of uplands. The analysis of dominating families allowed us to ascertain that the Asteraceae family has «absolute leadership» (19.1-29.8%) in the systematic spectra. At the studied dumps, the Poaceae family is one of the sub-dominant groups and occupies the second position in the rating of leading families – 7.8-12.8%. The anatomical and morphological features of the Poaceae family representatives give them a wide range of adaptive opportunities, which contributes to their survival in unfavorable conditions of the technogenically disturbed environment. In addition, the representatives of this family are very plastic in choosing of their survival strategies; when environmental factors change, they respond quickly to this situation by changing of adaptive strategies, so the same types of plants while changing the conditions of existence they have different coenobiotic types. This gives the gramineous plants a wide range of opportunities in a fierce competition for existence. The third to sixth place in the spectrum is occupied by the families Rosaceae, Fabaceae, Brassicaceae and Scrophulariaceae. The family of Apiaceae (6.4%, 5 species) occupies the seventh place in the spectrum of leading families, on the dump of the Pershotravnevyi this place takes the Lamiaceae family (8.7%, 10 species) and on the dump № 7 of Hleyuvatsky quarry and the mine «Bolshevik» it is the family Salicaceae (5.1-5.6%, by 5 species according).

Thus, the distribution of species by the dominating families of plant groups of woody plantations of the iron ore dumps is somewhat different from the zonal vegetation, which is due to the specificity of the ecotopic conditions at different locations.

Key words: Taxonomic Structure, Plant Communities, Dump, Kryvyi Rih