INTRODUCTION

The concept development of the factor differentiation of natural and modern forest cover and its dynamics development belongs to the modern actual problems of forests ecology. Such tasks were announced by forestry science classics in the middle of the 20th century. The initial solution to these problems can be found in the fundamental scientific works of famous Ukrainian scientists of that time – Ye. Alekseyev, A. Piasets′kyi, D. Vorob'yov, P. Pohrebniak. This mostly concerned of the Forest zone and Forest Steppe zone of the plain part of Ukraine, which climate conditions are temperate humid and not contrast. Local spectrum of soil moisture and soil fertility conditions is mainly determined by the ratio of sand and clay, less often calcareous deposits, in the subsoil substrate. The developed general scientific approaches and recommendations later found their practical implementation in these natural conditions.

The course of forest cover differentiation and its development in mountains is much more complex. Mountain massifs, which reach different heights and are characterized by a significant relief dismemberment, determine the formation of azonal altitudinal and exposure local climate differentiation. This generally determines the vegetation cover altitudinal and exposure differentiation. However, the mountain massifs geological structure can be determined by a wide range of rocks, in particular sedimentary, and their weathering products.

These can be non-carbonated hard sandstones layers from which the highest mountain ranges are built. Their slopes are covered with large stony deposits. However, low and medium-high mountain massifs are built by layers of sandstones, clay shales, clays, etc., of different thicknesses, which may contain carbonate impurities.

Such geological conditions cause the formation of the subsoil substrate with different content of stony, sandy and clayey components.

Similarly, in mountain valleys, accumulative deposits of different rock composition and of their layering are found. Depending on such subsoil substrate composition and its placement on the mountain ranges or valleys surface, different soil formation conditions are created. Accordingly, soils of different thickness and formation degree are presented here, which differ by chemical composition, water permeability and water-holding capacity. Their condition can also be modified by the slope gravitational processes action, in particular water-geochemical ones, importance of which was clarified in the H. Vysotskyi works.

Therefore, a wide range mosaic of local altitudinal-climatic, slope-exposure and soil-hydrological conditions determines the spatial features of the mountains vegetation cover, in particular, the forest cover at various stages of their development.

Such a wide range of forest stands and communities of different composition and productivity is presented in Z. Herushynskyi works on the Ukrainian Carpathians forest typology.

However, these valuable initial scientific generalizations require further development in the direction of concretizing the influence of environmental conditions complex in the mountains on their spatial localization and interconnection in the development course.

Therefore, the purpose of our study was to find out and summarize the forest cover heterogeneity features of the Eastern Carpathians model part, namely within the Dniester river basin. In particular, this concerned the current forest vegetation state and its formation processes, as well as the structure and dynamic changes of forest natural complexes in the main types of local climatic and soil-hydrological conditions.

In the former natural forests place, modern forests stands are the result from one to three anthropogenic transformation cycles, which determined their structural features. First of all, they depend on the natural-climatic and soil-hydrological conditions of the Carpathians natural regions: Carpathian Foothills, low-mountains, mid-mountains, etc.

The forest communities spatial differentiation in these regions can be fairly objectively represented by coordination models depending on the trophotopes categories and the slope water-geochemical conditions categories.

The trophotopes categories should reflect the soil cover fertility, that is, depending on the genetic type according to its state of formation under different geological substrates conditions.

The categories of slope water-geochemical conditions are topologically related to the spatial location of forest plots on the mountain ranges surface. They differ in the supply moisture type, water-permeable and water-retaining capacity, as well as geochemical elements washing-up features, their transit, or accumulation.

According to such soil and hydrological conditions complex, subclimax type forest communities are formed, which differ, in particular, forest stands structural features, the productivity potential, biological stability and protective functions. Most of such local climatic and soil-hydrological conditions can be favorable for the forest stands formation with the various edificatore and subedificatore tree species participation. Therefore, in such cases, can be formed quite different in composition, but interconnected types of forest, which can be conditionally combined into forest types complexes.

Each forest type has its own formation history, starting with young tree-shrub communities and ending with climax forest stands. In their development process on the felled forests site or deforestated plots as a result of natural processes, a forest stands development of successional serial stages of different age is characteristic. During this process changes, the forest-forming species edificatore representation, the composition and forest stands structure of different age groups.

Such a theoretical vision of the mountain forests genesis depending on climatic and soil-hydrological conditions has not only scientific significance, but can also find practical application. It can be useful concerning to forecasting structural changes in the forest cover during its restoration process, which is important to consider when designing forestry and nature conservation management.

We hope that the theoretical cognition principles of the forest vegetation heterogeneity in its development, depending on the variety of natural environment conditions of mountains, outlined in our monograph, will find understanding among scientists, in particular, specialists in the field of forest ecology, geobotany, and landscape science. And they will be also useful in the educational process of the students in the field of forestry, geography and biology.

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