

**STUDIES REGARDING ARBORETUMS IN THE PRODUCTION AREA NO. V -
MOLDOVA NOUA IN ORDER TO INCREASE FOREST PRODUCTIVITY AND
IMPROVE THE RECREATIONAL (PROTECTION) AND TOURISM FUNCTION**

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***Abstract:** This study provides an analysis of the possibility of increasing forest productivity and improving the recreational (protection) and tourism function of the forests from Production Unit No.V from Moldova Noua. Production Unit No.V from Moldova Noua has a total surface of 3579, 62 ha and consists of 134 plots. According to the Park Management Plan and in accordance with the internal zoning of the park, the reserve is located in the integral protection zone, which includes the most valuable assets of the natural heritage within the protected natural areas. Are allowed activities such as: scientific and educational activities; ecotourism activities, which do not require construction - investments; rational use of meadows for mowing and/or grazing only with domestic animals (the property of members of the communities that own pastures or who have the right to use them in any form recognized by current legislation, on the areas, during the periods and with the species and livestock approved by the park administration); and various actions and interventions to remove/prevent/combat some endangering factors for the natural habitats and the species of flora and fauna. In order to increase the productivity of forests and improve their functional and tourism role, in relation to the seasonal potential and the current structure of the stands, the following measures have been provided: improving or maintaining the natural structure of the stands, located on lands with difficult regeneration conditions; - improving the condition of the stands of type II of functional categories by applying special conservation works and prohibiting grazing. When revising the management, the situation of the poorly productive stands will be reanalyzed again and depending on their evolution, a new scheduling of management measures will be made to improve their productivity.*

Key words: tourism, recreation, forests, management measures

INTRODUCTION

Given the multifunctional role of the stands and the fact that they are subject to a special conservation regime, management measures present two distinct aspects: general management measures, which aim to conserve forests, maintain them in a good sanitary condition; management measures specific to the functions assigned and the component species, aiming primarily at achieving the priority function that also guarantees the fulfillment of secondary functions. There will be used wood exploitation technologies that do not affect soil quality.

The Production Area No.V Moldova Noua consists of 134 plots numbered from 1 to 134. The only change to the plot is an area that entered the forest fund of the production unit, two new plots being created that were subsequently numbered (133 and 134).

The subplot was executed under the guidance of the planning engineer and underwent changes as a result of the works executed during the period of applicability of the previous plan, of an in-depth analysis of the station, based on the medium-scale station mapping and as a result of the surface changes that occurred after the reconstitution of the property right [13,14]. The alphabetical indications of the old subplot were, as far as possible, preserved. The subplot changes were made in accordance with the regulations in force regarding the characteristics of the stands and the existing station conditions. The subplot was delimited and materialized by the designer with red paint.

The elements regarding the characterization of the stations, forest types, soil types and subtypes are based on medium-scale stationary mapping works. Thus, in order to establish the soil type and subtype, control profiles were executed on the ground in each management unit and main soil profiles were placed, seeking to capture all the characteristic aspects within the management unit regarding relief formations, soil formation rock, exposure, inclination, vegetation and others. The fauna of the reservation is very well represented at the level of each class. The existence of different types of habitats, from forest to rocky, even permanent and temporary watercourses, induce a good representativeness at the level of each animal group.

The Production Area No.V Moldova Noua, with a total area of 3579.62 ha, is administered by the National Forestry Administration [13].

Geographically, the forests from the Production Area No.V Moldova Noua are located on the southern slopes of the Locvei Mountains in the basins of the Valea Mare and Valea Baronului streams on the left bank of the Danube River. The arboretums of type I of functional categories (category 1.5C) were grouped in subunit "E" (reserves for integral nature protection) and occupy an area of 1077.57 ha [9, 10].

According to the provisions of Order 552/2003 on the approval of the internal zoning of national parks and natural parks were taken into account, from the point of view of the need to conserve biological diversity. The special conservation area includes the most valuable elements of the natural heritage inside the park [15, 16].

According to the article 3) of Order 552/2003, until the approval of the management plan of the Iron Gates Natural Park, which will regulate in detail the protection regime and detailed zoning, in the special conservation areas any forms of exploitation or use of natural resources, as well as any forms of land use, incompatible with the purpose of protection and/or conservation, are prohibited [6, 7, 8].

In special conservation areas in national parks and natural parks, outside the perimeters of scientific reserves with a strict protection regime, the following activities may be carried out [3,14]:

- a) activities of scientific and educational nature;
- b) activities of controlled tourism;
- c) rational use of meadows for mowing and/or grazing only with domestic animals owned by members of the communities that own pastures inside the park, on the areas, during the periods and with the species and numbers approved by the park administration, so as not to affect the natural habitats and species of flora and fauna present in the special conservation area;
- d) localization and prompt extinguishing of fires;
- e) interventions to maintain habitats in order to protect certain species, groups of species or biotic communities that constitute the object of protection, following the approval by the central public authority responsible for forestry and the environment of the provisional action plan developed for this purpose by the scientific council of the park and valid until the entry into force of the management plan;
- f) interventions for the purpose of protecting and maintaining natural ecosystems and rehabilitating inadequate or degraded ecosystems, upon the proposal of the scientific council of the park, following the approval by the central public authority responsible for forestry and the environment;
- g) actions to eliminate the effects of certain calamities, based on the approval of the central public authority responsible for forestry and the environment, upon the proposal of the scientific council of the park;
- h) actions to prevent the mass multiplication of forest pests and to monitor them, with the opinion of the scientific council of the park.

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Considering the multifunctional role of the stands and the fact that they are subject to a special conservation regime, management measures present two distinct aspects: general management measures, which aim to conserve the forests, maintain them in a good sanitary condition; management measures specific to the functions assigned and the component species, aiming primarily at achieving the priority function which also guarantees the fulfillment of the secondary functions [1,2,4,5].

It will be used technologies of wood exploitation, which do not affect soil quality.

MATERIALS AND METHODS

Among the objectives pursued by carrying out the work of care and management of the stands, the following are noted:

- preserving and improving the health of the stands;
- increasing the degree of stability and resistance of the stands to the aggressive action of internal and external destabilizing factors (diseases, pests, hunting, pollution, etc.);
- increasing the productivity of the stands;
- improving the eco-productive effects;
- increasing the fruiting capacity of the stands, by promoting phenotypically superior trees (positive selection);
- harvesting qualitatively superior and diversified wood mass in order to capitalize on it.

The means by which these are achieved are:

- directing natural regenerations or artificially established cultures towards specific compositions of mixed stands, according to the established goals, aiming to promote valuable native species;

- regulating the consistency of the stands in order to optimize it, according to criteria corresponding to the proposed goals;
- correlating and improving the structure of stands according to the origin of the component trees, promoting those from seeds or cuttings;
- improving the genetic structure of stands by extracting dry, poorly formed, decrepit trees;
- creating and improving the vertical structure of stands, by maintaining or forming the understory and sub-tree, under suitable seasonal and stand conditions.

RESEARCH RESULTS

Territorially, the production area extends over the communes of Gârnic and Sichevița, as well as the city of Moldova Noua. The area of the production area by territorial-administrative units is presented in the following table.

Table 1

The area of the production unit by territorial-administrative units

No.	County	Administrative-territorial unit	Plots	Area -ha-
1	Caras-Severin	Moldova Noua	1 – 69; 106 – 124; 125A; 125C; 126N; 127D; 128D; 133D; 134C;	2435,25
2	Caras-Severin	Garnic	70 – 103; 129D; 130D; 131D; 132D;	1077,24
3	Caras-Severin	Sichevita	104 – 105;	67,13
TOTAL		3579,62		

The headquarters of the Moldova Noua Forest District is located in the city of Moldova Noua, and the production and protection area is located in Caras - Severin County. From an administrative point of view, the forests that make up the U.P. V Moldova (public property of the state) are administered by the National Forestry Administration, through the Caras - Severin Forestry Directorate, respectively the Moldova Noua Forest District.

According to the records from the previous arrangement within the territorial limits of the U.P. V Moldova, at the date of drawing up the arrangement there is still an area of 926.1 ha of land covered with forest vegetation located outside the national forest fund, which belong to the Moldova Noua City Hall (614.1 ha), the Gârnic Commune Hall (107.2 ha) and the Pescari Commune Hall (204.8 ha).

All these areas are wooded pastures and were developed in 1985 by Institute of Forestry Research and Management from Caransebes, where were prepared silvo-pastoral studies.

CONCLUSIONS

To improve the productivity of low-yielding stands, each stand was analyzed individually within the production area, choosing the most appropriate improvement method.

The phasing of works to improve the productivity of the stands was done over a longer period of time, taking into account:

- Exploitation of the stands at ages when the wood material can be exploited at a higher level;
- Restriction of restoration and substitution works only to cases where the respective stands can no longer be regenerated naturally;
- Artificial stands that replace natural ones are less stable ecosystems, so their expansion is not recommended;
- most of the stands with low yield are managed until ages when natural regeneration from seed becomes possible, when works will be carried out to assist natural regeneration, in order to obtain mixed stands, with increased productivity and improved functional potential.

The technologies that will be applied in the case of works to improve the productivity of low-yielding stands will aim to ensure that the soil is stripped on as small areas as possible, and the addition of a new stand will be done after the stand created on the previous stand has reached maturity.

When reviewing the forest arrangement, the situation of low-yielding stands will be reanalyzed again and, depending on their evolution, a new scheduling of management measures will be made to improve their productivity.

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