

## Studies regarding forest management in Production Unit VII Corbu

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### Abstract

Forests, land for afforestation, all those serving the needs of cultivation, protection and production, constituted in Production Unit VII Corbu, within Forest County Orsova, D.S. Mehedinti, are national forestry fund public property of the State. They are in the commune of Eselnisa in Mehedinsi County. Geographically speaking, the forests of the Production Unit VII Corbu are located upstream from the town of Orsova, on the left bank of the Danube River, on the ridge, in the region of the Almajului Mountains (Svinecei Ridge).

**Key words:** high conservation, hill barrens, beech forests, forest floor, production

### Introduction

The Production Unit VII Corbu has its territory situated upstream of the town of Orsova, on the left bank of the Danube River, on its plain, in the eastern part of the Southern Carpathians, including the south-eastern part of the Almajului Mountains, which connect with the Balkan Chain through the portions called Cazanele Mari and Cazanele Mici [1,2,3,4].

It comprises the slopes of the Neamtului Stream, a left tributary of the Mracona Valley, which flows into the Danube.

The exposure of slopes can cause variations in the heat and sunshine regime, which also affect humidity processes and indirectly affect forest vegetation.[2,3] Slope, land slope act in close relation with exposure and altitude, influencing soil genesis conditions and leading to differentiation in the application of forest-technical measures, becoming a basic condition in protecting soils and avoiding erosion and landslides [3,4,5].

The relief encountered within the Production Unit VII Corbu determines major changes in the climatic and edaphic regime, influencing also the distribution of forest vegetation. Relief as a pedogenetic factor, through the orientation and inclination of the slopes and the configuration of the land, influences the formation and distribution of soils in the territory [3,5,7].

### Material and method

Forests fulfil a wide range of protective functions, including providing social services that are indispensable to human communities; in short, forests have multiple values. Where these values are of exceptional or critical importance, the forest can be defined as a forest of high conservation value [6,7,8].

High conservation value forests are therefore those forests that are of critical importance in terms of environmental protection, biodiversity conservation and the cultural and religious values of local communities [1,3,9].

The concept of "high conservation value forests (HCVF)" was first defined by the Forest Stewardship Council and is found in Principle 9 of the FSC certification standard, first published in 1999. Considered separately from forest certification, this concept has proven to be an effective way of proving or verifying responsible management of forest resources (sustainable forest management). As a result, it is used independently in many areas, such as: conservation and management of natural resources, procurement policy making in companies that process and value forest products, and even in policy making in government agencies [9,11,13].

Examples of forests with high conservation value can be:

- a forest that protects the only source of drinking water for a locality.
- forest areas hosting endemic or endangered species, or rare ecosystems.

- forests associated with traditional holidays or which house historical monuments, places of pilgrimage, cult units to which the identity of the respective communities is linked.
- a forest that is home to an important archaeological site.
- forests that provide certain products for local communities dependent on this kind of resources.

Forests with high conservation values should be managed to maintain and even increase the high conservation values identified within them.

Within the Production Unit VII Corbu there are stands certified as forests with high conservation value in 22.38 ha (u.a 120A, 120B), classified in the category VRC 1 - forest areas containing areas of high biodiversity of global, local or regional importance, with the following subcategories, subcategory VRC1.1 - protected areas [3,4,7].

The management measures for these areas are detailed in recommendations on the management of these forests [4,8,12]

### **Results and discussions**

The stands in the sustainable management area of the Iron Gates Natural Park have been classified as functional type III (category 1.6H) and those in ROSCI0206 Iron Gates and ROSPA0080 Almajului-Locvei Mountains as functional category 1.5Q5R (as secondary functions). According to the plan, activities such as:

- Educational and scientific activities.
- Ecotourism, which does not involve building and investing.
- Careful use of meadows for mowing and grazing with domestic animals in accordance with the rules imposed by the park administration to protect natural habitats and species of flora and fauna.
- Operational fire detection and suppression.
- Intervention to protect habitats, species or groups of species biological by admission of the central public authority for the protection of the environment and forests, in accordance with the opinion of the administration of the protected natural area and based on the decision of the scientific council, the provisional action plan being drawn up and valid until the management plan enters into force [2,3,4].
- Interventions for ecological reconstruction of natural ecosystems and rehabilitation of unfit or degraded ones require the opinion of the protected natural area administration and are based on the decision of the scientific council, approved by the central public authority for environmental protection and forests.
- Actions to remedy the effects of disasters require the opinion of the protected natural area administration and are based on the decision of the scientific council, approved by the central public authority for the protection of the environment and forests. If the disasters affect forest areas, remedial actions are carried out with the opinion of the administration of the protected natural area and are subsequently approved by the central public authority for the protection of the environment and forests [10,11,12].
- Activities to protect forests and prevent the mass multiplication of forest pests, which involve the removal of wood in quantities exceeding the provisions of the plans, require the opinion of the administration of the protected natural area and are based on the decision of the Scientific Council. These activities are subsequently approved by the central public authority for the protection of the environment and forests [8,9,10].
- Traditional renewable resource use activities, such as harvesting of berries, mushrooms and medicinal plants, are allowed within the productive and supporting capacity of ecosystems. These activities may only be carried out by natural or legal persons who own or manage land within the park or by local communities, with the approval of the protected natural area administration and in compliance with the regulations in force [1,2,3].
- Traditional farming and animal husbandry activities, as well as other traditional activities carried out by local communities, are allowed in the park.
- Tree care and management work and conservation work are permitted in the park.
- The application of reproduction treatment methods to promote natural regeneration of stands, such as classic shelter wood or shelter wood edge treatment, is permitted in the park.
- Hunting is allowed in the protected natural area on condition that the area manager approves the harvest quotas and hunting actions as decided by the scientific council.
- Sport fishing is allowed in the protected natural area.

Harvesting of main products in harvestable stands will be carried out according to decennial plans, respecting quiet periods during nesting, to ensure the protection of wildlife and biodiversity [4,5,6].

To conserve biodiversity, natural regeneration will be promoted through the application of appropriate treatments [8,10].

Summarizing the data on the „Station and Vegetation Study”, there is a close correlation and interdependence between environmental conditions and forest vegetation. Seasonal potential and stand productivity are shown comparatively in the table below:

**Table 1. Station and vegetation survey**

The beauty of the resorts			Stand productivity			Differences	
Category	Surface (ha)	%	Category	Surface (ha)	%	+	-
Superior	-	-	Superior		-	-	-
Middle	2202,33	63	Middle	1802,51	51	-	384,88
Lower	1311,69	37	Lower	1710,66	49	384,88	-
<b>Total</b>	<b>3513,17</b>	<b>100</b>	<b>Total</b>	<b>3513,17</b>	<b>100</b>	<b>384,88</b>	<b>384,88</b>

According to the table, stand productivity does not fully correspond to environmental conditions. Thus, on an area of 384.88 ha, stands produce less than their potential, due to the existence of several types of stands, such as under-productive, partially derived, fully derived and artificial stands, which may perform differently in relation to their environmental potential [14,16,18].

During the implementation period of the development, care, regeneration and sanitation felling should consider the maintenance of dead standing wood (dry trees, junipers, scrubby trees, etc.) and fallen trees, to preserve landscape diversity and to avoid concentrated final felling on large areas [9,10,11].

In addition to these measures, to allow the transition to an intensive management system, actions are needed to develop and modernize the forest road network, adapted to the nature and specificity of the planned activities [13].

In the forest, dead, standing and fallen wood will be retained up to a certain percentage (1-2%), as its removal can lead to advanced deterioration and reduced ecosystem stability, as well as reduced biodiversity. The greater the number of species and intraspecific units, the richer the biodiversity and the greater the stability of the ecosystem [7,8,11].

Following the parcel descriptions carried out, it was found that there is sufficient dead wood (minimum 1-2% of the volume) in the forests of Production Unit VII Corbu, which meets the European Union requirements for the minimum amount of dead wood required [8,9,10].

### Conclusions

After analysing the results of forest management, based on the provisions of the old plans, the following shortcomings were identified:

Care work, including clearing, cleaning and cooling, has not always been carried out on time and over the entire surface.

There have been situations where the replacement or restoration of stands that could be regenerated naturally has not been done. Sanitizations of stands were not carried out in all cases.

Treatments have not always been applied at the optimal time to ensure the best possible natural regeneration.

In the light of these results, the following measures will be taken for the next decade:

The regulation of the production process will consider the structure of the forest and its functional role, avoiding concentration of felling [12,13].

In terms of crop care, the aim will be to promote the basic species in line with the economic objectives set.

Through cleaning and thinning, encourage the growth of specimens from suckers and seed to the detriment of those from shoots, or individualize well-developed shoots with healthy stumps [14,15].

The recommendations for forest management are to create ideal conditions for the development of the basic species through care and regeneration cuts. In the current management, the shortcomings identified have been remedied by applying solutions in line with the technical rules in force for more efficient forest management [15,17,19].

Among the most important causes leading to this situation are:

- decrease in soil micro flora (bacteria and fungi).
- acid rain caused by industrial pollution in the area.
- a poorly developed canopy due to lack of proper tree care.
- period of drought in recent years.

The existing species (FA - 60%, GO - 17%, TE - 4%, DT - 7%, etc.) are consistent with local environmental conditions and the fundamental natural forest types identified within the production unit. The seasonal mapping carried out during the plot description played an important role in the development of the adopted solutions. The distribution of these species within the Production Unit depends on several factors, including the relief unit, geomorphological unit, soil conditions, ecological requirements of the species, and their resistance to various destabilizing and limiting factors [13,15,21].

The following technical and reproduction treatment measures are required to operate at full capacity and possibly improve seasonal potential:

- The regulation of the forest production process must consider the principles of management, in particular continuity and functional effectiveness.
- All land without forest vegetation in normal resorts must be afforested as a matter of urgency.
- Care work must be carried out on time as planned.
- The harvesting treatments and technologies should be applied differentially according to the actual forest type and the functions assigned to the stands.
- Unharvestable stands with low consistencies must be continuously improved.
- Forest law enforcement needs to be stepped up to prevent and remove the dangers of fires and abusive grazing in forests.
- All forest pests must be controlled in a timely manner.

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