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RESEARCH ON ECOLOGICAL RECONSTRUCTION OF DEGRADED LAND IN THE BISTRA VALLEY IMPROVEMENT PERIMETER

Ștefan Carolina^{1*}, Moatăr Mihaela¹, Dragomir P. I.¹, Vass H.¹, Ștefan Donatella-Iulia¹

¹University of Life Sciences "King Mihai I" from Timișoara, Faculty of Engineering and Applied Technologies

Abstract: Over time, man has left his mark on the environment. While in the early days of man's existence on Earth, human numbers were small and changes to the environment were insignificant, as the population grew, the natural environment underwent a long and intense process of anthropisation. The material studied is represented by the forest crops grown for the ecological reconstruction of degraded land in the Bistra Valley improvement perimeter. To determine the percentage of seedling trapping and for auxological measurements, the authors installed sample squares of 100 m² in the form of a square (10X10m). The improvement works carried out cover an area of 91 ha in the Valea-Bistrei perimeter. It restores the hydrological balance as well as the complex valorisation of the degraded land. Three categories of degraded land have resulted within the Bistra Valley improvement perimeter, namely, gullies and slopes.

• Introduction

Ecological reconstruction of forests is the ecological balancing, through silvicultural and management measures, of stands and forests as a whole where their structure does not correspond to the laws of structure and functioning of natural ecosystems. As an applied science, the ecological reconstruction of woodlands combines several disciplines and fields, of which the following are priorities: Forest Ecology, Forestry and Afforestation, and Forest Improvement. Ecological reconstruction work aims to establish methods and technologies for the restoration, replacement and improvement of poorly productive, derived, degraded, degraded and unsuitable stands of trees, particularly of brambles and holm oaks, to preserve the internal environment of the forest by making maximum use of the shelter of the degenerated stand.

• Material and method

The studied material is represented by the forest crops grown for the ecological reconstruction of degraded lands in the Bistrei Valley improvement perimeter.

To determine the percentage of seedling trapping and for auxological determinations, the authors installed sample squares, with an area of 100 m², in the form of a square (10X10m).

Determination of the percentage of seedling trapping was performed by counting vigorous, well-developed seedlings.

The height (cm) of each sapling was measured using a tape measure, and the diameter (mm) of each sapling was measured using an electronic calliper with an accuracy of 0.01 mm.

Conclusions:

The objective of the presented work is the ecological reconstruction through afforestation of degraded lands in the buffer zone of Bistra Valley, located in BUCOVA U.P. II. These areas need silvicultural improvement works.

Investments in ecological forest restoration works on lands affected by degradation phenomena have a pronounced technical, environmental protection character, resulting in economic effects that reduce and limit the soil degradation process and eliminate the damage caused to economic and social objectives. The improvement works carried out cover an area of 91 ha in the Valea-Bistrei perimeter. It restores the hydrological balance as well as the complex valorisation of the degraded land.

Within the Bistra Valley improvement perimeter, three categories of land result from the degradation processes, namely gullies, gully land and slopes.

• Results and discussions

Crt. no.	Category of works	Code of works	Name of works	UM	Quantities	
0	1	2	3	4	5	
1	A. Spatial planning works	A ₁	Gathered stones and boulders		1048	
2		A ₂	Simple terraces		4382,6	
3		A ₃	Fittings		15326	
4		A ₄	Rockfill		6522	
5	B. Soil preparation and improvement works	B ₁	Preparing in glasshouses		2,70	
6		B ₂	Fertilizing with topsoil		4416	
7	C. Afforestation works	C ₁	Installation of forest crops		441,6	
8		C ₂	Completion of forest crops		107	
9		C ₃	Forest crop		ha	176,7
10			maintenance Year	The year	ha	88,4
			2018	2019		
11			The year	ha	88,4	
			2020			
12			The year	ha	78,9	
			2021			
13			The year	ha	78,9	
			2022			
14	D. Fencing works	D ₁	Wire Fencing		6865	
15		D ₂	Perimeter hedge		71,40	

- The total value of the investment: **2390066.4 lei.**
- Area improved: **91 ha.**
- Specific investment **1430596.9 lei/ha**
- Duration of investment: **5 years - 2017-2022.**