

## CONSERVATION OF BIODIVERSITY IN THE CATCHMENT AREA CREANGA MICĂ

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### **Abstract**

*Human activity has contributed to erosion of biodiversity by activities as farms forestry, fishing, hunting, mining, agriculture and so on, so as to counteract these items to the address destructive nature has appeared a new science that addresses the ecology conservation. It has the role to predict natural disasters as a result of human activities and create scientific bases for the conservation operations of the environment and biodiversity.*

**Key words:** catchment, biocoenosis, ecological functions

### **INTRODUCTION**

To fulfil the roles of physico-geographical and antropo-geographical successfully, the forest needs an “applicable science that deals with the guidance of forest ecosystems in order to meet needs of society in a durable environmentally friendly way”- (N. Norocel, 2005.): this science is forestry. An environmental management in the catchment area Creanga Mica assumes knowledge of biology and ecology of the main tree species, as well as population and ecology of trees, shrubs, herbaceous plants, micro-organisms and animals of the biocoenosis forestry work. Sustainable management requires the knowledge of recovery capacity and the time for growing of stand, the mode of use of the resources of the catchment area, optimal operation of a percentage of annual increase of the earth woody.

### **THE CONCEPT AND PRACTICAL APPLICATION OF THE ECOLOGICAL FORESTRY**

After the first forestry plan from 1952, due to the economical grow, economy won the land in favor of ecology, which transformed to an intensive sometimes too aggressive management, leading to the appearance of spruces pure blend in place of the forests. The ecological forestry is forced to build and use discernment skills of the laws of nature. For a more eco-management new technologies; ecological reconstruction, recovery, recycling, decline, greening. Maintenance or reproduction of ecosystem's items is achievable and sustainable if nature is left to work alone.

Human intervention must be bounded at the level of founding of forests as being natural or artificial, that management and improve them

during their development and the harvesting wood and other products non-wood without adversely affecting and irreversible reduction from the environmental point of view. Eco-forestry requires to avoid land forest funds found on the surface, i.e. assume a permanent coverage of the soil with forest vegetation.

In order to obtain permanent coverage applies in particular regeneration under massive, or at the edge of the massive regeneration, continuous or periodic to apply garnering treatments, progressive or successive, taking into account the size stand.

Method of carrying out the work of the harvest of the possibilities annual wood materials involves a careful design of the prosecutor general's office; direction of felling, the direction of the closest removal area and so on. Forestry may include a series of recovery and management steps at different stages of development aligned with the work phase-specific question. Through this work the aim is to obtain quantitative and qualitative optimal wood materials on a given area without affecting the ability of the wood to exercise its economic, ecological and social functions.

Eco-Forestry has a favorable impact on social function of the forest by maintaining aesthetic landscapes or the environment in which the human beings carries out its activities, through cool ambience of the forest, which is characterized by clean air, the variety of landscapes as a form and colors, pleasant smell and so on. Around this type of forest ecology is present the regeneration of green areas, improve degraded land and torrent correcting aspect.

Permanent soil coverage obtained through a forestry, provides a habitat for wildlife, creating food, shelter and quiteness. Forest ecology applies to almost all areas of forestry such as in the culture of hunting and aquaculture, helping to keep the economic role in environmental conditions.

#### The social-economic and ecological functions

Depending on the social-economic and environmental strategy requirements is slotted a strategy forest ecosystems to the strategy development company in the area. The most important direction in which it operates is increasing protection of the environment, improving the quality of environmental factors (air, water, soil, flora, fauna) by those measures that are applied to raise the standard of living and social individual inhabitants in the zone.

High priority objectives are the following:

- preservation of forests and ensure ecological balance on the land with a tilt greater than 35g or on land with a tilt less but with obvious slip or erosion phenomena;

- to obtain divers biomass and high quality;
- return the empty land in the economical and environmental circuit in the shortest possible time

Above mentioned objectives referred are included in the first forestry plan by invoking the protection and production up to the level subzones, arboretum designed to protect these objectives have been divided into zones.

### Forest's Functions

In relation to the social-economical and forest ecological requirements studied, arboretums are attributed to more of the functions of protection, these functions are divided into groups, subgroups and category functional.

Group I. Forest vegetation with special functions of protection (54 %) of which subgroup - forests with water protection features(47 %) subgroup - forests with soil protection features(5 %) forests located on land under permanent swamp. (2 %)  
Group II. Forests assuaring the production of the wood. (46 %)

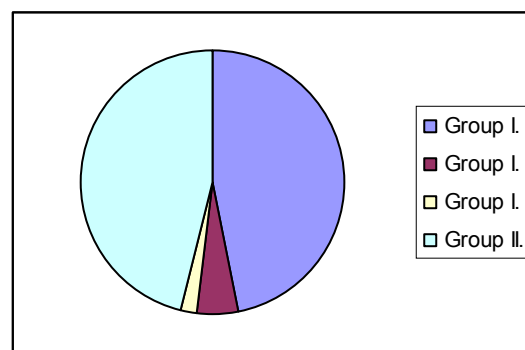


Fig.1

The function of the protection of the waters, of the forest in the Creanga Mică catchment area has a major importance because of the presence of an accumulation dam downstream of catchment area at a distance of 17 km, supplied among other brooks by the Tartod brook and Creanga Mică these being the tributaries of Târnava river.

In carrying out the appropriate conditions of functions, both stands taken individually and the forest as a whole, must meet certain requirements of the structure.

The maximum efficiency of the production fund is normal and it is characterized by a structure and normal size. Having regard the natural conditions of vegetation of the forest and the socio-economic and ecological

requirements applied on the studied woods surface so the regeneration is from seed on natural or artificial way.

Rational management of the forests having the multi-purpose role necessary to adapt to the special treatment based on promoting natural regeneration. The period of application to ensure that they will cover the soil continuously. It is linked a technique for the application with the technology of operation and it is performed a regeneration with minimum injury brought seedlings and trees remaining straight and the soil.

It is successfully applied the progressive slaughter treatment which have been depopulated by slaughter of mixtures of spruce and beech in the ratio of 98 %, and on a proportion of 2% is applied to treatment which have been depopulated by slaughter of conservation. The conservation work is applied to surfaces with a tilt of more than 35g, and on surface covered by permanent swamp.

Through the composition of the stand is pursued the ecological stability priority and the maintenance of natural valuable biocoenosis untainted and the proper biota. For every stand in part it is set a goal that harmonises the composition of species in the mixture and how grouping will impact the socio-economic requirements. Current and future ecological requirements of the species within the stational potential and current status of the studied stands. The current composition of the stand is 53MO47FA, it would be recommended for inclusion in the stand of several fast growing species and valuable to increase the economic value of the stand and the ecological diversification.

The operability of Arboreta is without taking into account the protection of a certain age. Arboreta production functions have an operability, the average age of it is 106 years old.

Having in consideration that the stand's composition of the species, which are usually such cycle is 110 years. The studied area is characterized by the following types of forest resorts, particularly of Harghitei Mountain:

Mountain blends, Brown middle edaphic with *Asperula Trifoliata*.

Mountain blends, Brown huge edaphic with *Asperula Trifoliata*.

From the morphological conditions point of view appear on the metamorphic formations, consisting as a rule of acidic rocks.

Geomorphological conditions; the relief is rugged, with varying inclinations on suny hillsides. Has a continental climate, gentle and moderate, which satisfies both the requirements of the spruce, pin and beech.

Soils are brown or yellowish-brown, middle deep and very rich in the skeleton. All these features of the type of resort contributes to higher productivity and ecological requirements of the forest's ecological stands.

The structure of production and protection fund

Productivity stand is superior in a proportion of 77 %, and medium at a rate of 23 %, which gives the yield very good economic and ecological. In the Creanga Mică catchment area the proportion of species participating in woods composition shall be in the following format; spruce (61 % ), followed by beech (48 % ), and other species (1 % ). Spruce comes in the ratio of 55% from seeds, and 45% from plantings.

To an average age of 63 years, and a class of average production of 2,0 performs an annual increase an average of 10.7 cubic meters/ha and a medium volume per hectare to 406 cubic meters, with a medium consistency 0,78 . Beech tree occupies 48% of the area studied. Originates, in the ratio of 98% of seed, and 2% of shoots. At an average age of 64 years, and a class of average production of 2.9 performs an annual increase an average of 6.1 cubic meters/ha and average volume per hectare to 217 cubic meters, to a medium consistency of 0.77.

## CONCLUSION

Without an ecological and sustainable management Arboreta may not meet the the expected roles on economic, environmental area. The balance between economic and the ecological roles can be sustainable only by keeping permanent coverage of the soil with forest vegetation having indigenous, valuable, historically species which are adapted to the environmental conditions in our area and can meet with success any changes to the unfavourable environment. So the success stands in the healthy, valuable and aesthetic quality forestry.

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