

# Entrophogenic Impact on Habitats from Natural Park Lunca Muresului

Codruta Suciu<sup>1</sup>, I.Petroman<sup>1</sup>, Cornelia Petroman<sup>1</sup>, Diana Marin<sup>1</sup>

<sup>1</sup>Banat`s University of Agricultural Sciences and Veterinary Medicine, Faculty of Agricultural Management,  
Calea Aradului,119, Timisoara, Romania

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## Abstract

The increasingly intense impact of human activities has led the humanity to understand the importance of green areas, unspoiled by man and to take the actions in order to delineate these areas. Across Lunca Muresului Natural Park one of the human activities with impact on the environment is grazing. This can have a positive effect on habitats, but also a negative one, depending on way how it is done. The grazing directed increases the longevity of vegetation cover and also of the animal performance, while irrationally grazing, overgrazing led to the destruction of grassland habitats. In Lunca Mures Park one of the species of animals of Community interest witch is directly affected by the intensive grazing is *Spermophilus citellus* gopher although the conservation status of this in the protected area regarding the number of individuals is favorable, in terms of habitat of the species, the conservation status is unfavorable.

**Keywords:** habitats, species of community interest, gopher, overgrazing.

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## 1. Introduction

Convention for Biological Diversity (CBD) defines biodiversity as being "the variability of living organisms from all sources, the terrestrial and marine ones, including the diversity of species, communities and ecosystems." [1]

And the best way to protect the biodiversity is represented by the protected areas. These represent "terrestrial/aquatic and/or underground areas where there are species of wild plants and animals, elements and formations of biogeographical, landscape [2], geological, paleontological, caving or otherwise nature, with special ecological, scientific or cultural value, which have a special protection and conservation regime established according to law" according to Emergency Ordinance no. 57/2007 regarding the

regime of protected natural areas, conservation of natural habitats, of wild flora and fauna [3].

The purpose of the designation of certain areas as natural protected areas it is not the interdiction of human presence in those areas, but finding new ways of development of anthropic activities with the condition to preserve fauna, flora and habitats threatened by human activities [4,5].

In the early 90s, the European Union has established a network of protected areas, Natura 2000, which has on base the Directive "Habitats" (Directive 92/43/EEC regarding the conservation of natural habitats and species of plants and wild animals) and the Directive "Birds" (the Directive 79/409/EEC regarding the conservation of wild birds) - and includes a series of regulations that aims the protection of habitats and species of plants and animals threatened with extinction on the territory of European Union.

Following the supported actions of conservation or rehabilitation of some ecosystems from governments of EU member countries, 24% from terrestrial and marine habitats affected in the past by human actions on Europe's territory represents

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\* Corresponding author: Cornelia Petroman,  
[c\\_petroman@yahoo.com](mailto:c_petroman@yahoo.com)

now optimal areas of living for various species of plants and animals of Community interest - according to the European Commission.

In Romania one of the habitats relatively widespread, but also affected by human action is represented by pastures [6-9], which are found in all regions of the country, from the Danube Delta and the Western Plain to the alpine meadows of the Carpathian Mountains. The grasslands represent the habitats for many species of plants and animals, a part of those being of community interest.

## 2. Materials and methods

Studies regarding the anthropic impact on habitats were held in the Lunca Muresului Natural Park where we have analyzed the structure of protected area, the conservation status, and the anthropic activities that cause the degradation of habitat.

## 3. Results and discussion

Lunca Muresului Natural Park covers an area of 17455 ha and includes several categories of lands: forestry fund, arable lands, meadows, pastures, thickets, water surface and unproductive lands - according to Management Plan of Lunca Muresului Natural Park.

The grasslands from the protected area mentioned above occupy 11% from the surface administered by the park, namely 1911 ha. Some of them fall into the habitat of conservative interest by the territory of protected area, the Habitat 6510 - Low altitude grasslands. This type of habitat is spread here and there in the natural area, in the canals area and at the edge of the forest, near the village Felnac, in Bezdin area.

The conservation status of the Habitat 6510 – grasslands of low altitude is unfavorable, and the current threats of its, are represented by the anthropic actions: the burning of dry vegetation and particularly overgrazing [10].

Both undergrazing and overgrazing are harmful to a habitat. Undercharging of a grassland or even its abandon may attract the installation of woody of bush vegetation, of the invasive species of plants, such as: dwarf acacia (*Amorpha fruticosa*), American maple (*Acer negundo*) etc.

The extension extremely fast of invasive plant species is one of the main threats to the address of the worldwide ecosystems. So, the European Union has issued the EU Regulation no. 1143/2014 of the European Parliament and of the European Council regarding the prevention and managing the introduction and spreading of the invasive exotic species.

For this reason there are a series of funding programs designed not only to the countries member to EU, but also to other European countries, witch address the environmental problem and finances projects that has as purpose combating invasive species of plants. European Biodiversity Strategy has until 2020 six goals, from which one aims to the combating of invasive species of plants.

The development and expansion of invasive plant species with witch Europe is facing in the present lead to destruction of biodiversity, economic damages in agriculture and forestry that causes losses of billions of euros annually at European level [11].

So the importance of grazing is very high for increasing the quality of the vegetation cover and therefore, for increasing the quality of life of animals from that area, but depends by the way it is done.

Grazing rationally, although does not constitute a considerable effort to pastors is adopted by many people. It involves only division of animals on different sectors of the grassland and avoiding of it overloading, thus allowing the vegetation cover to regenerate itself. For a quality grassland and for an optimal recovery of the grass it is indicated that it to be not trampled or eaten by animals for 13 days after the first grazing [12,13].

Free grazing, irrational is not suitable for grasslands because it does not take into account the time for grazing, by the loading and standing of the animals on a given area generating overgrazing of the area. The overgrazing of a certain parcel of land generates the consume by the sheep/cattle only to a certain plants, through selective grazing, so leaving the possibility of developing the weeds. So the extension of the grazing period on some surface of a too many number of animals, can cause both soil erosion and subsidence of soil, the latter ones destroying the habitats of gopher (*Spemophilus citellus*) - one of the species of Community interest from Lunca Muresului Natural Park.

Gopher can be often found in grasslands or clearings, it depends on maintenance of shorter vegetation, how it would be by grazing, or indulgence of the locals, who sometimes casts him. Although it is a species of Community interest, and in some areas of Europe and even Romania's, the gopher is found in low numbers, due to its natural predators (foxes, raptor birds), in Lunca Muresului Natural Park, after mapping it has shown that there are about 46 specimens/hectare, thus having a favorable status in terms of the number of individuals. [10].

But in terms of habitat of gopher, the conservation status of its is unfavorable, and the causes are both the fragmentation of habitats, the expansion of human settlements and overgrazing, fact which attracts soil compaction, the destruction of galleries of these mammals and, thus, reducing their habitat and even their expulsion.

#### 4. Conclusions

Despite the fact that Lunca Muresului Natural Park made considerable efforts to restore to the habitats of grassland, the diversity of flora and fauna that corresponds, it is necessary also of the involvement from local people from the adjacent areas and of the landowners in order to restore their specific biodiversity. They are necessary measures to reduce grazing in the protected area for keeping the flora biodiversity.

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