APPROACHES ON FLORISTIC COMPOSITION AND PASTORAL VALUE OF SOME PERMANENT PASTURES IN HĂUZEŞTI AREA (WESTERN ROMANIA)

C. C. DURAU, A MOISUC, V. SARATEANU

Banat's University of Agricultural Sciences and Veterinary Medicine, Faculty of Agricultural Sciences, Timisoara, Aradului Street, no. 119, RO-300645, Romania
Corresponding author: sch_carmen_1999@yahoo.com

Abstract: *Because of the expansion of agricultural crops that cover mainly fertile land areas, pastures were constraint to draw back on less fertile lands. Man's intervention in the structure of pasture ecosystems consists in the way he harvests biomass and in the land maintenance works. Man's impact on the biocoenoses changes their composition and structure. The reason that land surfaces are improperly managed is due to the fact that the land has become private property and the new owners aren't concerned about the applying of any management. All these aspects correlated with the decrease of the number of cattle resulting in a lower grazing pressure have influenced the dynamics vegetation and pastoral value. In this paper we make appreciations on the floristic composition and on the pastoral value of some permanent pastures around the Hăuzeşti area, trying to identify measures to improve . The study took place in Western Romania in the hills of Surduc which are situated at the bottom of the Poiana Rusca Mountains, east from the Bega – Luncani River and north from the terraces of the Bega River. The study was carried out on two permanent pastures, assessment of the vegetal cover was done through the double meter method and the results were processed on the ground of the botanical sampling. The statistical method used was the analysis of the correlations. Following the study, we drew the conclusion that irrational exploitation of these ecosystems resulted in the simplification of the floristic composition and in the decrease the pastoral value, which asks for new measures to be adopted in their management. Therefore our intention to continue this study is to notify the specialists regarding the implementation of rehabilitation measurements needed for the improvement of the quality and the quantity of forage produced on these surfaces.*

Key words: *grasslands , pastoral value, specific volume*

INTRODUCTION

After 1989 and the fall of the communism, many agricultural areas and particularly the areas covered by grassland were abandoned in transition countries. They estimated that about 30% of the areas covered by grassland were abandoned in such countries as Romania and Bulgaria. At present, in some of the regions including mountain areas, grasslands are almost totally abandoned. This can also be illustrated by the dramatic fall of the grass eaters (PEETERS 2008).

The effects of agricultural practices on the floristic composition and on plant features of the grasslands are well known. Plant features are characteristics measurable at individual level, from the cell to the entire plant, with no reference to environmental conditions or to another level of organisation (VIOLLE *et al* .2007, cited by AMIAUD *et al* 2008).

At present, in some regions including mountain areas, the pastures were abandoned almost entirely. This can be illustrated also by the dramatic drop of the number of herbivores (Peeters 2008). In the last years the number of research regarding the impact of management on structure and composition of the flora of pastures has grown considerably (KRAHULEC et al.,

2001; MARRIOTT et al., 2002; MATEJKOVÁ et al., 2003; PAVLU et al., 2003; HOFMANN and ISSELSTEIN, 2004; KOHLER et al., 2004 quoted by PAVLU et al. 2006).

Mowing, livestock density, mineral or organic fertilization but also animal species and time of exploitation are the main management variables that drive the vegetation dynamics of a pasture. The intensity of time changes of these processes result in the classification, composition of the flora and implicitly in changes in the ecosystem's functionality.

These explanations and the great interest for the monitoring of the impact of mowing and grazing on plant communities have the purpose of keeping up biodiversity, economical and esthetical values (JITKA KLIMENŠOVå et al. 2008).

MATERIAL AND METHOD

The study took place in Western Romania in the hills of Surduc which are situated at the bottom of the Poiana Rusca Mountains, east from the Bega – Luncani River and north from the terraces of the Bega River. The south borderline towards Poiana Rusca follows the alignment of the Crivna, Hauznesti, Gladna, Zolt, Tomesti towns; the boundary is formed by the Valley of Sasa River up to Crivna de Sus.

The connection with the mountains is made through an abrupt unevenness and through a series of valleys. The vegetation and pastoral value was determined by means of the linear method (DAGET and POSSONET, 1971) the observations were made on five permanent sample plots on each of the two analyzed pastures..

The two analyzed pastures are located near Lake Surduc, each of them being placed as follows: the pasture of *Lolium perenne* L. and *Trifolium repens* L. 198 m a.s.l. and the pasture of *Agrostis capillaris* L. 290 m a.s.l. with north-west exposition. The statistic method we used was correlation analysis.

RESULTS AND DISCUSSIONS

These last years, the number of researches concerning the assessment of the effect of management on the structure and floristic composition of grassland increased considerably (KRAHULEC *et al*. 2001; MARRIOTT *et al*. 2002; MATEJJKOVA *et al*. 2003; PAVLU *et al*. 2003; HOFMANN & ISSELSTEIN 2004; KOHLER *et al.* 2004 cited by PAVLU *et al*. 2006).

After sampling we could see that the pastoral value (VP) index decreasing year after year.in every each pastures. The dynamics of pastoral value is represented in figure 1 and figure 2.

Agrostis cappilaris L. pasture (AC) is characterized by a medium pastoral value, witch maintain about 49 and 38,2. That's being attributed to climatic conditions and management, probably being favoured species as *Juncus conglomeratus* L. Hiperycum perforatum L. whose dynamics is growing. Figure 2

In the *Lolium perenne* L. and *Trifolium repens* L. pasture only some bushes of *Holcus lannatus* L. were detected in 2005 but became the dominant species together with *Calamagrostis arundinacea* L. in 2009. Figure 1

Analysing the correlation between pastoral value (PV) and specific volum (%) of graminaceae (G), legumes (L), and of the species belonging to other botanical families (AF), we could see there is a negative correlation (r =- 0.98 LPTR, r =- 0.7 AC) between the pastoral value and the specific volume (%) of graminaceae and a positive one in legumes (r =0.92 LPTR, r =0.7 AC).

Between the pastoral value and the specific volume (%) of the plants of other botanical families there positive correlation (r=0.91) in LPTR but in AC is an negative correlation. Figure 3. Figure 4

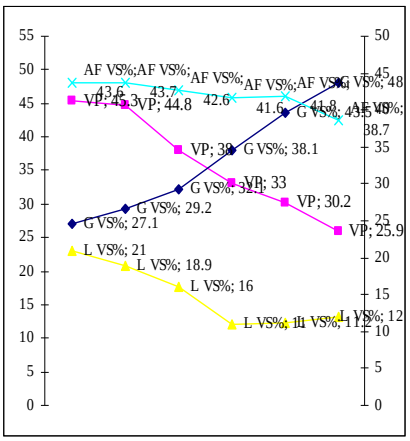
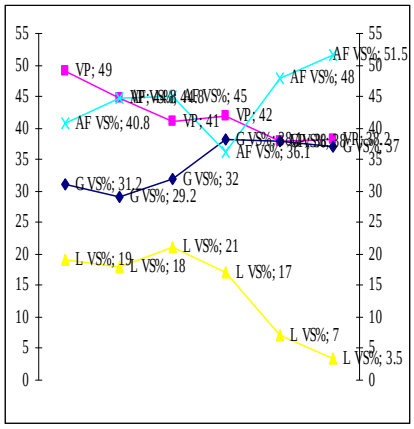


Figure 1 Dynamics VS% and Vp of LPTR G



FfFigure 2 Dynamics VS% and Vp of AC G

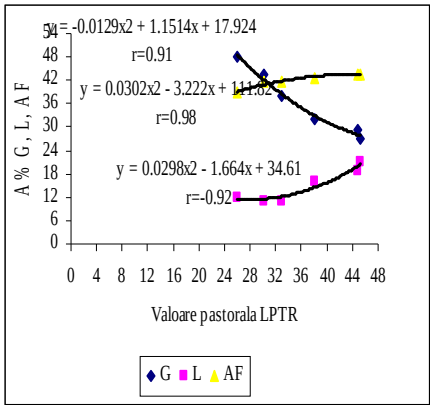


Figure 3 Relation between VP and A% of LPTR

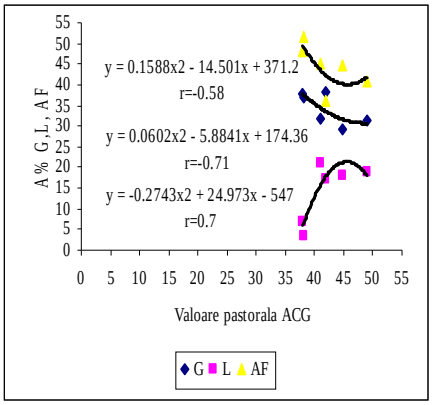


Figure 4 Relation between VP and A% of AC

The explanation for which the trend of the species from the point of view of their specific volume (%) was probably determined by both under-exploitation and the microclimate developed by the presence of the Surduc Lake (about 1,000 m far).

CONCLUSIONS

In Banat, but especially in the selected area (Surduc Hills) studies regarding the dynamic of vegetation and also aspects regarding biodiversity are still in an initial phase. Also monitoring the management of these semi-natural pastures especially grazing is difficult because rational mowing is not practised.. Under-exploitation as well as the micro-climate developed by the presence of the Surduc Lake determined the trend of the species from the point of view of their specific volume(%);

BIBLIOGRPHY

1. AMIAUD B.,MERLIN A., DAMOUR A., GAUJOUR E., PLANTUREUX S. (2008) Efects of agricultural practices on spatial dispersal patterns of permanent grassland species, *Grassland sience in Europe* (13) pp.75
2. PAVLŮ V.et.al. (2006**)** Changes in plant densities in a mesic species-rich grassland after imposing different grazing management treatments, *Grass and Forage Science* 61(1), p 42-51
3. KLIMEŠOVÀ J, LATZEL V., DE BELLO F. AND VAN GROENENDAEL J.M. (2008) Plant functional traits in studies of vegetation change in response to grazing and moving: towards a use of more specific traits. *Preslia* 80, 245-253.
4. PEETERS A. (2008) Challenges for grasslands, grasslands-based systems and their production potential in Europe. *Grassland science in Europe* 13, p.11