ON THE IMPACT OF TEROPHYTA DYNAMICS ON PASTORAL VALUE OF A PERMANENT GRASSLAND IN THE SURDUC LAKE AREA (TIMIS COUNTY)

IMPACTUL DINAMICII UNOR TEROFITE ASUPRA VALORII PASTORALE A UNEI PAJIŞTI PERMANENTE DIN AREALUL LACULUI SURDUC

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***Abstract**: In this paper we present a study of the impact of some terophyta on the pastoral value of some permanent grassland of Poa pratensis L. The inventory of the vegetal cover was done with the help of the double meter method; observations were done by analysing 35 samples for 5 years. The study of the dynamics of the frequency specific to terophyta we can draw the conclusion that there is a negative correlation between it and pastoral value and pastoral value decrease rate depends on the frequency specific to terophyta (i.e. -0.77).*

***Rezumat** Lucrarea de faţă reprezintă un studiu asupra influenţei unor terofite asupra valorii pastorale a unei pajişti permanente de Poa pratensis. L.. Inventarierea covorului vegetal s-a facut cu ajutorul metodei dublului metru, observatiile realizandu-se prin analiza a 35 de relevee timp de 5 ani. Din studiul dinamicii frecventei specifice a terofitelor am putut conchide ca exista o corelatie negativa intre aceasta si valoarea pastorala iar rata de scadere a valorii pastorale in functie de frecvenţa specifica a terofitelor este de – 0,77.*

Key words: *permanent grassland, terophyta, specific frequency, pastoral value*
Cuvinte cheie: *pajişti permanente, terofite, frecvenţă specifică, valoare pastorală*

INTRODUCTION

As a result of natural conditions, grassland flora in the Banat area is rich. Many of the species have a remarkable fodder value, some others are less valuable, and most of them are weeds or toxic plants (COSTE *et al.*, 2001). As synthetic index, pastoral value has a particular significance. Thus, it was included in the Directions for the grassland appraisal works (1978) and is an important objective of appraisal and classification works of grasslands in Romania (ANGHEL *et al.*, 1978).

MATERIAL AND METHOD

The study was carried out in the Surduc Hills area. The Surduc Hills are located at the foot of the Poiana Ruscă Mountains, and are bordered east by the Bega-Luncani rivulet, and north by the Bega River terraces. The southern border, to the Poiana Ruscă Mountains, follows the alignment of the localities Crivina, Hăuzeşti, Gladna, Zolţ, and Tomeşti; the border goes along the Saşa River valley, up to Crivina de Sus. The contact with the mountain is done through a strong bump area and through a series of contact depressions.

Observations were made during 5 years on a grassland of *Poa pratensis* L. the permanent grassland we analysed is located in the near vicinity of the locality Hăuzeşti, at an altitude of 260 m.

The vegetation was determined through the double meter method (DAGET and POSSONET, 1977), which allowed the calculus of the pastoral value.

The calculus of the pastoral value consists of the following:

- multiplying for each species its specific volume (VS) with its own Specific Quality Index (IS);
- adding the values thus obtained for all the species;
- dividing the total by the maximum grade 5.

The index obtained for the pastoral value has values between 0 on grassland with no fodder value, and up to 100 on a sowed grassland (the ideal situation).

Linear regression

Linear regression is a means of studying and assessing the relationship between two variables (as the correlation coefficient).

This consists of the assessment of a mathematical relationship between variables starting from the sample of pair observations. We consider a variable independent (x) and a variable dependent (y) on the independent values (STATON, 2001; ARSENE, 2002).

RESULTS AND DISCUSSION

Grasslands of *Poa pratensis* L. are spread in watersides covering mainly sandy, sandy-loamy alluvia, which gives them a strong mesophilous character (SANDA *et al*., 1998).

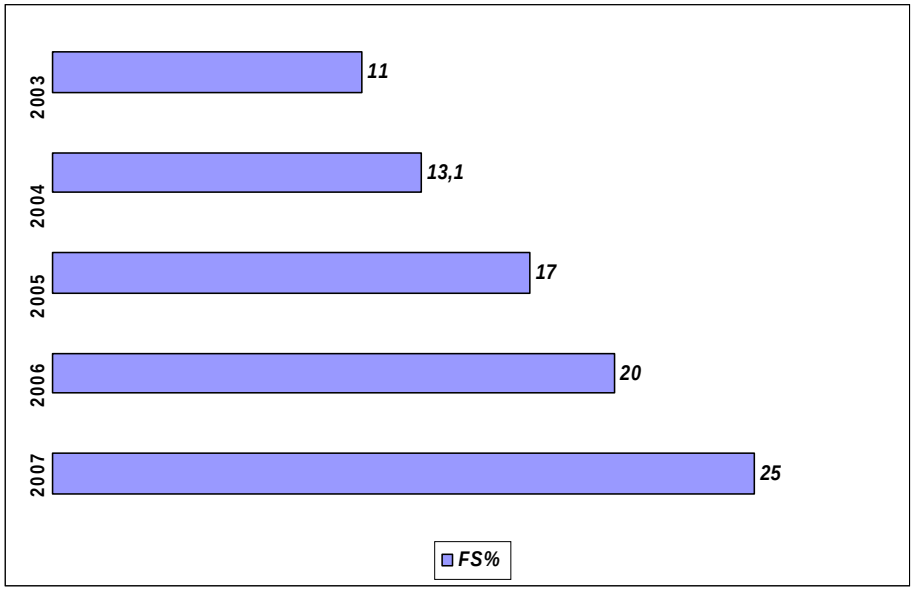

Figure 1. Evolution of the specific frequency (FS%) of terophyta on the grassland of *Poa pratensis*

In the basin of the Timiş River, these coenoses have been identified between 140 and 620 m altitude on plane or little sunny slope lands up to moderately slope lands (GRIGORIU, 2002).

Bio forms are an expression of the adaptation to environmental conditions. Inventorying the vegetal cover we analysed, we could identify the following terophyta: *Carduus acanthoides* L., *Crepis bienis* L., *Polygonum aviculare* L., *Myosotis stricta* Link., *Erigeron anuus* (L.) Pers.

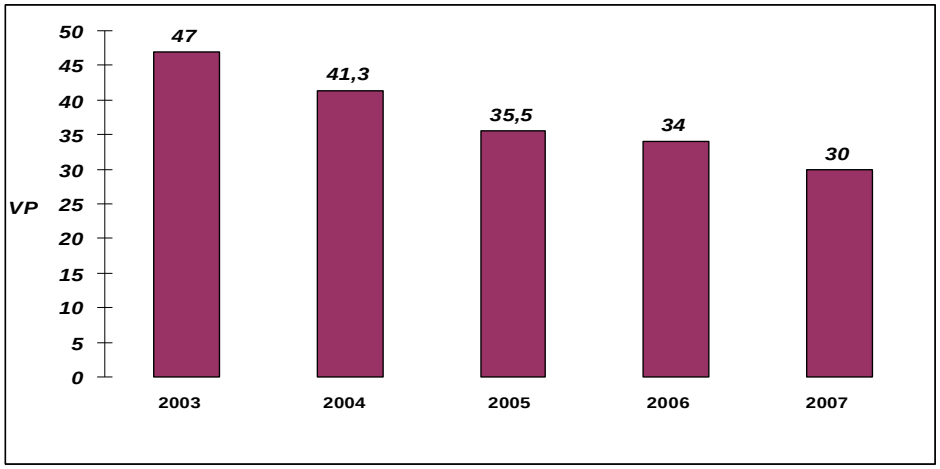

Figure 2. Dynamics of pastoral value on the grassland of *Poa pratensis* L

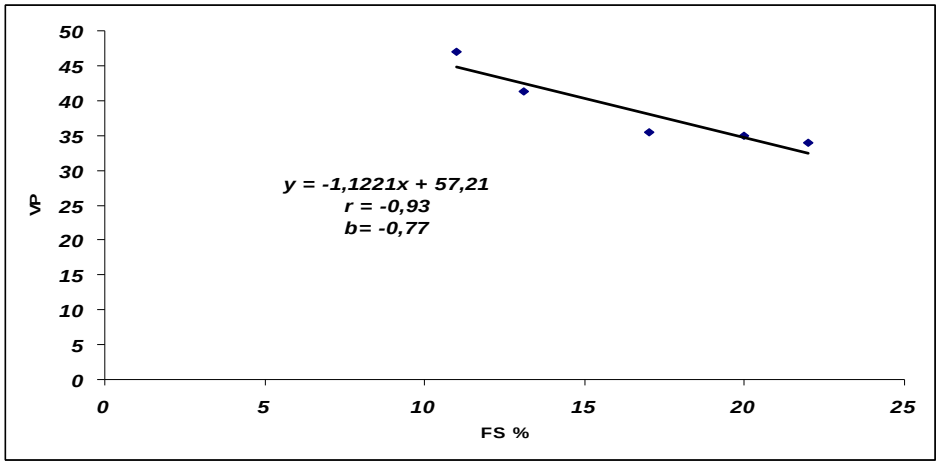

Figure 3. Correlation between specific frequency of terophyta and the pastoral value of the grassland of *Poa pratensis*

Frequency is an important index which, according to BORZA (1934) shows the local presence of the individuals of a species over the entire area of the patch, i.e. dispersion and degree of homogeneity of the distribution of the individuals of a species per examined unit. Studies concerning the frequency of the species were also carried out by BOTNARIUC & VĂDINEANU (1982) who show that "the greater the number of samples, the more the value obtained will be to the real frequency". In or case, the dynamics of the FS % of the measurements we made shows that it increases from 11% in 2003 to 25% in 2007, thus speaking of a stronger ruderalisation tendency in the years 2006 and 2007.

This can also be explained by the fact that under-exploitation led to this situation in the dynamics of pastoral value as well, which decreases from 47 in 2003 to 30 in 2007. In

general, as mentioned in our literature, pastoral value of these coenoses is 50-55 (BARBULESCU & MOTCĂ, 1987), and in the case of improper grazing, the grassland evolves to a grassy cover belonging to the *Festucetum rupicole* association (BURDUJA *et al.*, 1956).

Analysing the relationship between the FS% and pastoral value, we can say there is a negative correlation between the two variables.

CONCLUSIONS

The evolution of the specific frequency of terophyta is ascending and configurates a strong tendency to ruderalisation.

There is a negative correlation between pastoral value and FS%.

In theory, pastoral value of the analysed grassland decreases with 0.77 units per year.

LITERATURE

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