

## CHARACTERISATION OF THE PASTORAL VALUE OF SOME GRASSLAND FLOODED IN 2005 FROM TIMIȘ COUNTY

### CARACTERIZAREA VALORII PASTORALE A UNOR PAJIȘTI INUNDATE ÎN ANUL 2005 DIN JUDEȚUL TIMIȘ

Valeria PAVEL\*, Alexandru MOISUC\*\*

\* *Timiș County Prefecture, Timișoara*

\*\* *Banat's University of Agricultural Sciences and Veterinary Medicine – Timișoara  
Calea Aradului, no. 119, 300645 Timișoara, Timiș, România, e-mail: alex\_moisuc@yahoo.de*

**Abstract:** *The effects produced by flooding on the ecosystems are the followings: injuries on the biodiversity; reducing and degrading the natural habitat; the lack of drinking water for wild animals; the appearance of the epidemics in plants and animals; the appearance of the phenomena of migration and forced concentration of some species; the increase of the extinction risk of some endangered species; the modifying of the soil salinity; the increase of the soil erosion risk; the modifying of the water quality; landscape modifying. The present work represents a study of the flora and vegetation from the area set under the influence of the flooding in the Timiș – Bega inter-river. Thus were realized researches on the changes appeared in the vegetation cover of some grassland flooded for different intervals of time. The study was realized on three grasslands from the perimeter of Grăniceri locality and three from Foeni locality, Timiș County. All surfaces were flooded in April 2005. The researches were developed during a period of three years, respectively 2005-2007. This work is looking to define aspects concerning the influence of the flooding duration on the features of the vegetation cover from the studied areas, respectively the pastoral value. After the analysis of the data obtained we can conclude the followings: the pastoral value of the analyzed grasslands is evolving ascendant from a year to another showing that these vegetation communities have a great capacity of recovery after disturbing factors, in this case the flooding; the increase of the pastoral value of the grasslands in the years following the flooding can be assumed on the contribution of the nutritive elements brought by alluviums on these surfaces; the pastoral value with ascendant sense is determined by the increase of the participation in the vegetation carpet of the species with forager value better from a year to another.*

**Rezumat:** *Efectele produse de inundații asupra ecosistemelor sunt următoarele: pagube asupra biodiversității; reducerea și degradarea habitatului natural; lipsa hranei și apei de băut pentru animalele sălbatice; apariția epidemiilor la plante și animale; apariția fenomenelor de migrație și concentrare forțată a unor specii; creșterea riscului de extincție a unor specii pe cale de dispariție; modificarea salinității solurilor; creșterea riscului de erodare a solului; modificarea calității apelor; modificarea peisajului. Lucrarea de față reprezintă un studiu al florei și vegetației din zona aflată sub influența inundării în interfluviul Timiș – Bega. Astfel au fost efectuate cercetări complexe asupra schimbărilor survenite în covorul vegetal al unor pajiști care au fost inundate pentru intervale diferite de timp. Studiul s-a efectuat pe trei pajiști din perimetrul localității Grăniceri și trei din localitatea Foeni, județul Timiș. Toate aceste suprafețe au fost inundate în luna aprilie a anului 2005. Cercetările s-au desfășurat pe o perioadă de trei ani, respectiv intervalul 2005 – 2007. Lucrarea caută să lămurească unele aspecte cu privire la influența duratei de inundare asupra caracteristicilor covorului vegetal din zonele studiate, respectiv valoarea pastorală a pajiștilor din această zonă. În urma analizării datelor obținute putem concluda următoarele: valoarea pastorală a pajiștilor analizate evoluează ascendent de la un an la altul ceea ce arată că aceste comunități vegetale au o capacitate ridicată de refacere în urma unor factori perturbatori, în acest caz inundațiile; creșterea valorii pastorale a pajiștilor în anii următori inundării poate fi pusă și pe seama aportului de elemente nutritive aduse de aluviuni pe suprafețele în cauză; valoarea pastorală cu sens ascendent este determinată de creșterea participării în covorul vegetal a speciilor cu valoare furajeră tot mai bună de la un an la altul.*

**Key words:** grassland, flooding, pastoral value, vegetation.  
**Cuvinte cheie:** pajiste, inundație, valoare pastorală, vegetație

## INTRODUCTION

The main causes of the flooding are: important amounts of rainfalls (cumulated being over  $200 \text{ l/m}^2$ ), that during the spring were overlapping on the existent snow layer (in some areas this being thicker then 1 m), those facts leading to great volumes of the flash flood (on Timiș River, in Șag section, the volume of the flash flood being 770-250 thousand  $\text{m}^3$  passing over the one from 2000 when it was 250 thousands  $\text{m}^3$ ) [6].

The impact of the effects of the flooding and the dangerous meteorological phenomena on the environment can be direct or indirect, their implications being found on the ecosystems and on the society [5].

## MATERIALS AND METHODS

This study was realized on three grasslands from the area of Grăniceri locality, Timiș County. All these surfaces were flooded in April 2005.

The researches were developed during three years, respectively 2005-2007. This work is looking to clear some aspects concerning the influence of the flooding duration on the features of the vegetation cover from the studied areas, respectively their pastoral value.

As method of study of the vegetation here was used the square meter method that facilitate the calculation of some indexes of the vegetation, and on the background of the data obtained with the help of this method was calculated the pastoral value (VP) and the specific volume.

## RESULTS AND DISCUSSIONS

### Grassland no. 1 Grăniceri

The pastoral value (VP) in 2005 is 32 (figure 1), this being considered an average value, this fact being predictable from the analysis of the species indicator of vegetation association. In 2005 the greatest specific volume is found for: *Trifolium repens* 27 % ( $IS=4$ ), *Achillea millefolium* 20 % ( $IS=2$ ) and *Medicago lupulina* 17 % ( $IS=4$ ).

For 2006 the pastoral value (VP) shown a lower value of the quality of the vegetation because the relative volume of the dominant species 37 % for *Daucus carota* ( $IS=2$ ), 17 % for *Poa annua* ( $IS=2$ ) and 13 % for *Medicago lupulina* ( $IS=4$ ), this fact being predictable from the analysis of the dominant species, and the VP in this year was 45, this being considered a medium value.

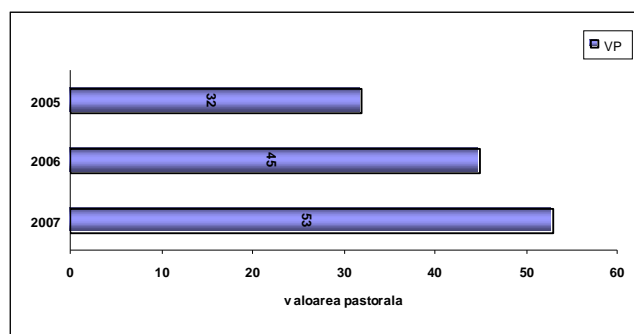


Figure 1. Graphical representation of the pastoral value of the grasslands Grăniceri no. 1 (2005-2007)

The VP calculated for 2007 is 53, this being an average value this be due to the specific volume of the dominant species that was 40 % for *Trifolium repens* ( $IS=4$ ), 20 % for *Daucus carota* ( $IS=2$ ) and 13% for *Potentilla reptans* ( $IS=0$ ).

Referring to the dynamics of the pastoral value of the grassland Grăniceri no. 1 during 2005-2007, there we have vegetation with an average quality of the VP, this being relatively stable with an ascendant trend.

### Grassland no. 2 Grăniceri

The pastoral value of this grassland in 2005 is 25 this meaning that we have a satisfactory value on the scale from 0 to 100, where 0 represents a grassland without forager value and 100 an ideal grassland, because the specific volume of the main species is 20 % for *Trifolium repens* ( $IS=4$ ), 20 % for *Poa pratensis* ( $IS=4$ ) and 10 % for *Bromus hordeaceus* ( $IS=4$ ) (figure 2).

In 2006 the VP is 39 this being an average value this being due to the specific volume of the dominant species that is 30 % for *Festuca arundinacea* ( $IS=4$ ), 20 % for *Artemisia austriaca* ( $IS=0$ ) and 20 % for *Cardaria draba* ( $IS=0$ ), this fact is due to the dominance of the species with low or without forager value.

The VP calculated for 2007 is 52, this being considered as average this being determined by the specific volume of 50 % for *Trifolium repens* ( $IS=4$ ), 20 % for *Artemisia austriaca* ( $IS=0$ ) and 17 % for *Agropyron repens* ( $IS=2$ ), these species being dominant in the vegetation cover.

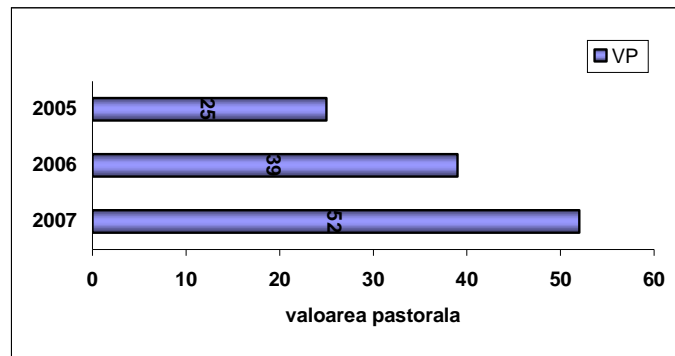


Figure 2. Graphical representation of the pastoral value of the grasslands Grăniceri no. 2 (2005-2007)

The pastoral values obtained during the researches on the grassland no. 2 Grădinari were comprised between 25 in 2005 and 52 in 2007, this showing the ascendant evolution of the quality of the vegetation cover of the grassland.

### Grassland no. 3 Grăniceri

The pastoral value determined in 2005 is 28 this meaning an average value this fact being predicted also by the dominant species in the vegetation carpet these being 23 % *Vicia grandiflora* ( $IS=3$ ), 16 % *Achillea millefolium* ( $IS=2$ ) and 13 % *Poa annua* ( $IS=2$ ) (figure 3).

In 2006 VP showed an average quality of the vegetation, this fact being noticed from the analysis of the dominant species from this year that have a low quality index (IS). The dominant species *Poa annua* has a specific volume of 20 % ( $IS=2$ ), *Luzula luzuloides* 13 % ( $IS=0$ ) and *Daucus carota* and *Achillea millefolium* 10 % ( $IS=2$ ).

In 2007 the VP was better and the specific volume was 27 % for *Poa pratensis* ( $IS=4$ ), 23 % for *Vicia grandiflora* ( $IS=3$ ) and 20 % for *Alopecurus pratensis* ( $IS=4$ ) this fact being predictable from the analysis of the indicator species for the vegetation association, the dominant species in the vegetation cover with good quality index. The pastoral value in this year was 65 this being a great one for this area.

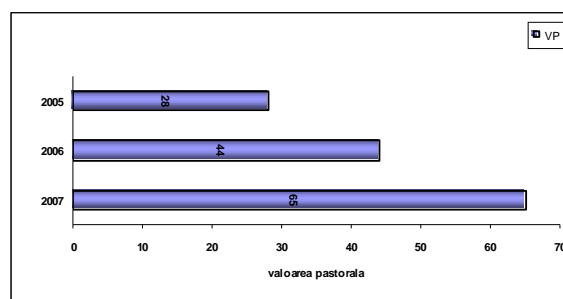


Figure 3. Graphical representation of the pastoral value of the grasslands Grăniceri no. 3 (2005-2007)

There can be noticed that the VP in grassland no. 3 Grăniceri is increasing from 28 in 2005 to 65 in 2007 because there become dominant the species with greater forager value.

### CONCLUSIONS

After the analysis of the data obtained from those three grasslands from Grăniceri we can conclude the followings:

- the pastoral value of the grasslands is evolving in an ascendant direction from a year to another that showing that these vegetation communities have an increased recovering capacity after some disturbing factors, in this case the flooding;
- the increase of the pastoral value of the grasslands in the years following the flooding can be assumed to the contribution of the nutritive elements carried there by the alluviums;
- the pastoral value with ascendant direction is determined by the increase of the participation in the vegetation carpet of the species with better forager value from a year to another.

### BIBLIOGRAPHY

1. MOISUC, A., 1991 – Cultura pajiștilor și a plantelor furajere, Lito IAT, Timișoara.
2. MOISUC A., SAMFIRA I., CARRERE P., 2001, Pajiști naturale și exploatații ecologice, Editura Agroprint Timișoara.
3. MOISUC, A., DUKIC, D., 2001 – Cultura plantelor furajere, Editura Orizonturi Universitare, Timișoara.
4. PAVEL, VALERIA, A. MOISUC, 2007 - Characterisation of some grassland affected by flooding, Scientifical Papers Faculty of Agriculture, Editura Agroprint, Timișoara Vol. XXVIII, 24-25 mai 2007, p. 317-320.
5. xxx - Raport privind efectele inundațiilor și fenomenelor meteorologice periculoase produse în anul 2005, Ministerul Mediului și Gospodăririi Apelor, Comitetul Ministerial pentru situații de urgență.
6. xxx - [www.mmediu.ro/ape/mundatii](http://www.mmediu.ro/ape/mundatii), consultat la 20.08.2005.