

THE PASTORAL VALUE OF FINIȘ VALLEY GRASSLAND (CODRU-MOMA MOUNTAINS, BIHOR COUNTY)

Pășcuț Călin Gheorghe*

* University of Oradea, Faculty of Environmental Protection, 26 Gen. Magheru St., 410048 Oradea, Romania, e-mail: pascutcalin@yahoo.com

Abstract

The paper is a study of pastoral value for the Finiș Valley grasslands (Codru-Moma Mountains, Bihor County). The study of the grasslands on the Finiș Valley was carried out between 2017-2018, 2 types of grasslands were identified *Agrostis capillaris*-*Festuca rubra* grasslands and *Festuca rupicola* grasslands. In these types of grasslands a number of 27 relevées were performed (22 relevées in *Agrostis capillaris* with *Festuca rubra* grasslands and 5 relevées in *Festuca rupicola* grasslands).

The types of habitats in which the studied grasslands on the Finiș Valley fall within are the R3803 Southeast Carpathian grasslands of *Agrostis capillaris* and *Festuca rubra*, R3404 Ponto-panonic grasslands of *Festuca rupicola* and *Koeleria macrantha* (Doniță et al., 2005).

Key words: grasslands, pastoral value, qualitative index, types of grasslands.

INTRODUCTION

The grasslands studied are located on the Finiș Valley, the left affluent of the Crișul Negru River. Finiș Valley is the main watercourse in the Codru-Moma Mountains, with a large collection area (78.35 km²). Finnish Valley has its springs on the eastern slope of the Codru Peak.

Finiș Valley is located at 3 km from Beiuș town, with a length of 23 km. This is formed by the union of two valleys, the Bear Valley, which originates from Brătcoaia meadow and Bălătesei Valley, which springs from the Bălăteasa Peak

The grasslands studied in the Finiș Valley can be found at the edge of the forest roads as well as in the form of enclaves within the beech forests.

Two types of grasslands were identified during the study, namely: *Festuca rubra*-*Agrostis capillaris* and *Festuca rupicola*. Among the more recent studies concerning the flora and vegetation in the meadows of the studied area, we mention the ones made by Pășcuț (2010, 2011, 2012).

MATERIAL AND METHODS

To determine the quality of grasslands, pastoral value is used, which is a synthetic index which is determined by using floristic methods of appreciation. Determining the pastoral value of grasslands is useful in determining the number of animals that can pasture these pastures.

The floristic composition of these grasslands and the appreciation of the participation of the component species was achieved by the phytocoenologic method elaborated by Braun-Blanquet and the pratological method developed by Klapp-Ellenberg.

The phytocoenologic method (Braun-Blanquet), calls for the appreciation of the abundance and dominance (AD) of the 100 m² grassy area in representative key points, being marked on a scale from 0 to 5, which correspond to the percentage of participation: 5 (coverage average of 87.5%), 4 (coverage average of 62.5%), 3 (coverage average of 37.5%), 2 (coverage average of 17.5%), 1 (coverage average of 5%), + (coverage average of 0.5%), (Cristea, 1993; Cristea et al., 2004).

The pratological method (Klapp-Ellenberg), focuses on the appreciation of the percentage participation in the biomass of the botanical components by economic groups: grasses, legumes, other families, harmful and toxic plants, wood species, being the most recommended rapid method for determining grassland vegetation.

The pastoral value of the grasslands is determined by using a pointer through the formula (Marușca et al., 2012, 2014):

$$V.P. = \frac{\sum P.C.(%) \times I.C.}{5}$$

where: V.P. – pastoral value indicator (0-100);

P.C. – participation in the grassy area (%)

I.C. – forage quality index.

The floral relevée with percentage participation of the species being available, the feed quality index is marked next to each species (IC), with values from 0 (without fodder value) to 5 (with excellent fodder value). After determining the pastoral value indicator, grasslands can be appreciated as follows: 0-5 (degraded grassland), 5-15 (very weak), 15-25 (weak), 25-50 (middleweight), 50-75 (good), 75-100 (very good) (Marușca et al., 2012, 2014).

The nomenclature used is based on the work done by Ciocârlan (2009) and Sârbu et al., (2013). The values of the feed quality index (IC) have been taken over from the work of Rotar et al., (2009) și Marușca et al., (2012, 2014).

RESULTS AND DISCUSSION

The grasslands of *Agrostis capillaris* and *Festuca rubra* occupy the largest areas in the studied area starting from the area of the oak trees to the beech subtask. The *Agrostis capillaris* and *Festuca rubra* grasses of good productivity are distinguished on fields with a slope ranging from 0-25.72%, at altitudes of 190-750 m, at different exhibitions (table 1).

The soils are brown argiloiluvous, brownish luvisols, whiteish luvisols, eutricambosols, with weak acid to neutral reaction. *Agrostis capillaris* and *Festuca rubra* are valuable species from the feed point of view, highly consumable ones (IC=3).

The vegetation consists of many species of high fodder value (*Agrostis capillaris*, *Festuca rubra*, *Festuca pratensis*, *Dactylis glomerata*, *Lolium perenne*, *Phleum pratense*, *Trifolium repens*, *Trifolium pratense*, *Lotus corniculatus*), but also worthless, harmful and toxic species (*Pteridium aquilinum*, *Euphorbia cyparissias*, *Eryngium campestre*, *Sambucus ebulus*, *Ranunculus polyanthemos*, *Hypericum perforatum*, *Rumex conglomeratus*, *Urtica dioica*, *Carduus acanthoides*). Often these grasslands are also invaded by harmful woody vegetation *Prunus spinosa*, *Rubus sulcatus*, *Juniperus communis*, *Rosa canina*, *Crataegus monogyna*, in drier areas and *Corylus avellana*, in wetter areas.

The pastoral value of *Agrostis capillaris* and *Festuca rubra* grasslands is good, reaching a production of 10-15 t/ha MV (MV-volume of grass) and a grazing capacity of 1.0-1.2 UVM/ha (UVM-great beef unit/ha).

Festuca rupicola grasslands can be found in the area of beech forests in the studied area, at altitudes of 465-650 m, on moderately inclined slopes (21.24-27.96%), on sunny exhibitions (S, SE, SV) (table 2).

The predominant soils are cambic chernozems, gray soils, argilo-clay bricks, rendzine, regosols, erodisols.

In the floristic composition of these grasslands a series of harmful and toxic species can be included (*Euphorbia cyparissias*, *Pteridium aquilinum*, etc.), but also medium-sized species in terms of qualitative index (*Festuca rupicola*, *Agrostis capillaris*, *Cynosurus cristatus*, *Lotus corniculatus*, *Trifolium hybridum*).

The pastoral value and productivity is medium, with a production of 3.5-6 t/ha MV (MV-volume of grass) and a grazing capacity of 0.4-0.6 UVM/ha. (UVM-great beef unit/ha).

Table 1

The pastoral value of *Agrostis capillaris* and *Festuca rubra* grasslands

No. relevées	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	%PC	IC	PC x IC	
GPS coordonates	Altitude (m)	400-425	460-510	570-595	590-635	710-750	665-700	485-555	515-535	190-210	655-675	630-580	560-560	550-560	485-510	430	470	435-530	470-485	445-500	425-465	435-520	410-435			
	Lat. N	46.63364	46.62923	46.62488	46.62235	46.60673	46.60539	46.59154	46.59398	46.59631	46.59338	46.58747	46.57884	46.58028	46.58142	46.56708	46.57232	46.57007	46.57032	46.56737	46.56840	46.56902	46.56828			
	Long. E	22.23074	22.22438	22.22415	22.22470	22.27176	22.28314	22.22802	22.22857	22.22774	22.21395	22.21479	22.21292	22.21351	22.22992	22.22220	22.21182	22.20786	22.19893	22.20340	22.22172	22.22415	22.22739			
Exposition	SE	SE	N	E, NE	S, SV	S	NE	S	S, E	S	V	E	SE	SV	-	-	S	NV	N	SE	S	SE				
Slope (degree) (%)	17.16	16.89	21.00	14.75	15.97	12.97	16.43	23.25	21.67	10.88	10.01	11.81	14.28	15.82	-	-	16.22	15.54	23.79	15.35	25.72	16.63				
Herbaceous layer coverage (%)	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100				
Shrubbery layer (%)	10	15	60	30	12	13	20	40	50	60	12	10	8	8	5	8	8	1	8	5	10	10				
Area (m ²)	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100				
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Poaceae																										
<i>Agrostis capillaris</i>	60	60	70	50	40	35	50	55	30	20	30	25	55	40	65	60	50	60	20	35	50	65	46.59	3	139.77	
<i>Festuca rubra</i>	10	15	10	20	30	35	20	10	30	40	40	20	25	5	10	15	20	50	25	15	5	22.27	3	66.81		
<i>Cynosurus cristatus</i>	1	1	3	1	1	2	1	1	+	-	2	1	1	2	1	2	1	1	1	+	1	1.14	3	3.42		
<i>Dactylis glomerata</i>	5	1	-	1	-	-	1	1	3	-	1	+	-	-	1	-	-	-	-	-	-	1	0.68	5	3.4	
<i>Lolium perenne</i>	-	-	-	1	-	-	-	-	-	-	-	2	1	2	-	2	1	2	1	1	+	1	0.64	5	3.2	
<i>Phleum pratense</i>	-	-	-	+	-	1	1	1	5	1	1	1	1	-	1	-	-	-	-	+	-	-	0.59	5	2.95	
<i>Holcus lanatus</i>	+	1	2	1	1	1	1	1	1	1	1	1	1	1	5	1	1	1	2	1	+	1	1.14	2	2.28	
<i>Festuca rupicola</i>	-	-	-	-	-	-	1	5	-	5	8	1	-	-	-	1	+	-	-	-	-	-	0.95	2	1.9	
<i>Anthoxanthum odoratum</i>	3	3	3	3	2	3	1	3	+	-	2	1	1	2	1	2	1	2	1	1	+	1	1.64	1	1.64	
<i>Festuca pratensis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	1	-	-	1	+	1	0.23	5	1.15	
<i>Agropyron repens</i>	-	2	-	-	-	-	-	-	-	1	-	-	-	-	-	3	-	-	-	-	-	-	0.27	2	0.54	
<i>Briza media</i>	1	1	-	+	+	1	1	1	-	1	1	-	+	-	-	-	-	-	-	-	-	-	0.32	1	0.32	
<i>Brachypodium pinnatum</i>	-	-	-	-	-	-	-	2	-	5	-	-	-	-	-	-	-	-	-	-	-	-	0.32	1	0.32	
<i>Festuca arundinacea</i>	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	1	-	-	-	-	-	-	0.04	3	0.12	
<i>Brachypodium sylvaticum</i>	+	-	2	+	+	-	-	-	-	-	-	-	-	-	+	-	-	-	-	-	-	-	0.09	1	0.09	
<i>Nardus stricta</i>	+	-	-	+	4	2	-	-	+	-	-	-	-	-	-	-	+	-	+	-	-	-	0.27	0	0	
<i>Dichanthium ischaemum</i>	-	-	-	-	-	-	-	-	+	3	-	+	+	-	-	+	+	-	-	-	-	-	0.14	0	0	
<i>Calamagrostis epigejos</i>	-	1	-	+	+	1	-	-	-	1	-	+	+	-	-	-	+	+	-	-	+	+	0.14	0	0	
<i>Molinia caerulea</i>	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	+	-	+	-	-	-	0.04	0	0	
<i>Danthonia decumbens</i>	-	+	+	+	+	+	+	-	-	+	+	+	+	+	-	+	+	+	+	+	+	+	-	0	0	
Fabaceae																										
<i>Trifolium repens</i>	1	2	-	2	2	2	1	-	1	-	1	2	1	2	2	2	1	5	2	2	2	3	1.64	5	8.2	
<i>Lotus corniculatus</i>	1	2	1	2	2	1	1	1	1	2	1	2	1	1	2	2	1	2	2	1	2	2	1.5	4	6	
<i>Trifolium pratense</i>	1	1	1	1	1	1	1	-	1	-	1	1	1	-	1	1	1	1	1	1	1	1	0.86	5	4.3	
<i>Trifolium hybridum</i>	1	1	1	1	1	1	1	+	+	-	1	1	1	1	1	1	1	1	1	1	1	1	0.86	4	3.44	
<i>Trifolium alpestre</i>	-	-	-	-	-	-	-	1	+	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04	2	0.08	
<i>Dorycnium pentaphyllum</i>	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	0.09	0	0	

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
<i>Genistella sagittalis</i>	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04	0	0	
<i>Trifolium medium</i>	+	+	+	+	+	+	+	+	+	-	-	-	-	+	+	-	-	+	-	-	+	-	+	-	-	2	0
<i>Ononis spinosa</i>	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	
Other families																											
<i>Achillea millefolium</i>	1	1	1	1	1	1	1	2	1	1	2	+	+	2	1	+	2	+	+	+	+	+	1	0.82	2	1.64	
<i>Daucus carota</i>	2	1	1	1	-	-	2	1	1	1	1	+	-	+	-	-	2	+	+	+	-	+	1	0.59	2	1.18	
<i>Plantago lanceolata</i>	+	1	+	1	+	+	+	1	-	1	1	+	+	+	-	-	1	+	+	+	+	+	1	0.32	2	0.64	
<i>Pimpinella saxifraga</i>	+	-	+	1	1	1	1	+	1	-	1	1	+	+	-	-	-	+	+	1	-	+	1	0.41	1	0.41	
<i>Fragaria vesca</i>	+	-	1	1	1	1	1	+	1	+	1	+	+	+	+	-	+	+	+	-	-	1	-	0.32	1	0.32	
<i>Galium verum</i>	+	+	-	1	-	1	1	+	-	-	+	+	-	2	-	+	-	+	+	+	+	+	1	0.27	1	0.27	
<i>Cichorium intybus</i>	+	-	+	+	-	-	-	-	-	-	1	-	+	+	1	-	+	+	+	+	-	+	1	-	0.14	1	0.14
<i>Leontodon autumnalis</i>	+	-	-	+	-	-	-	-	-	-	-	-	+	1	1	-	+	+	+	+	+	+	-	0.09	1	0.09	
<i>Prunella vulgaris</i>	+	+	+	+	+	+	+	-	-	-	-	+	+	+	+	-	+	+	-	+	+	+	1	0.04	1	0.04	
<i>Juncus effusus</i>	-	1	1	+	1	1	1	1	-	1	-	-	-	-	1	+	5	1	1	4	4	1	2	1.14	0	0	
<i>Thymus glabrescens</i>	+	1	1	1	1	1	1	-	+	+	+	1	3	2	3	-	+	+	1	+	-	3	1	0.86	0	0	
<i>Carex hirta</i>	+	+	+	1	1	-	1	-	1	-	-	-	4	+	1	2	1	+	1	-	1	1	1	0.73	0	0	
<i>Juncus inflexus</i>	-	2	-	-	-	-	2	-	-	-	-	-	-	-	-	5	-	5	-	-	-	-	-	0.64	0	0	
<i>Centaurea phrygia</i>	6	1	+	1	+	1	+	-	1	1	1	1	+	+	+	-	+	+	+	-	+	-	1	0.59	0	0	
<i>Hieracium pilosella</i>	-	-	-	+	1	1	-	-	-	-	1	1	-	+	+	1	+	+	1	-	-	1	-	0.32	0	0	
<i>Mentha longifolia</i>	3	1	-	-	-	-	-	+	-	-	-	-	-	-	-	2	+	+	-	-	+	-	-	0.27	0	0	
<i>Eupatorium cannabinum</i>	-	-	1	+	-	-	-	-	-	2	-	-	-	-	1	-	+	-	-	-	-	-	-	0.18	0	0	
<i>Agrimonia eupatoria</i>	+	+	1	1	+	+	-	+	+	+	-	+	+	1	-	+	+	+	-	+	-	+	-	0.14	0	0	
<i>Galium mollugo</i>	+	+	+	+	+	1	-	+	+	+	+	+	+	1	+	+	+	+	+	+	+	+	-	0.09	0	0	
<i>Carex caryophylla</i>	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	+	-	-	-	-	0.04	0	0	
<i>Teucrium chamaedrys</i>	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	+	-	-	-	-	0.04	0	0	
<i>Filipendula hexapetala</i>	-	-	-	-	-	-	-	+	+	-	1	+	-	-	-	-	-	-	+	-	-	-	-	0.04	0	0	
<i>Centaurea scabiosa</i>	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04	0	0	
<i>Clinopodium vulgare</i>	+	-	-	+	+	+	+	+	+	+	-	+	-	-	1	-	-	-	+	-	-	-	-	0.04	0	0	
<i>Erigeron annuus</i>	+	-	-	-	-	-	-	-	-	-	-	-	+	-	-	-	+	-	-	-	+	+	1	0.04	0	0	
<i>Potentilla erecta</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	1	0	
<i>Rumex acetosa</i>	-	-	-	-	+	+	+	-	-	-	-	-	+	+	+	-	-	+	+	+	+	+	+	-	1	0	
<i>Prunella laciniata</i>	-	-	-	+	-	-	-	-	-	-	+	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	
<i>Leontodon hispidus</i>	-	-	-	-	+	+	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	0	
<i>Cerastium holosteoides</i>	+	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	0	0	
<i>Viola tricolor</i>	+	-	+	+	+	+	-	-	-	+	+	+	+	-	-	-	-	-	-	+	+	+	+	-	0	0	
<i>Cruciata labra</i>	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	-	0	0		
<i>Glechoma hederacea</i>	+	-	+	+	-	-	-	+	+	+	+	+	+	-	-	+	-	-	-	-	-	+	-	-	0	0	
<i>Dianthus carthusianorum</i>	-	+	-	+	+	-	-	+	-	-	+	-	-	+	-	-	-	-	-	-	-	-	-	-	0	0	
<i>Carlina vulgaris</i>	-	-	-	+	+	+	-	-	-	-	-	+	-	+	+	+	+	-	-	-	-	-	-	-	0	0	
<i>Bellis perennis</i>	-	-	-	-	+	-	-	-	-	-	-	-	+	-	-	-	-	+	+	-	+	-	-	-	0	0	

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
<i>Verbena officinalis</i>	.	.	.	+	.	.	+	+	+	+	.	.	0	0
<i>Leucanthemum vulgare</i>	.	+	+	+	.	+	+	0	0
<i>Veronica officinalis</i>	+	+	+	+	+	+	.	.	0	0
<i>Euphrasia stricta</i>	+	+	.	.	+	.	.	+	0	0
<i>Seseli annuum</i>	+	+	.	+	+	0	0
<i>Juncus tenuis</i>	.	.	.	+	+	.	+	.	.	.	0	0
<i>Lysimachia nummularia</i>	.	+	+	.	+	0	0
<i>Dipsacus laciniatus</i>	+	+	.	+	0	0
<i>Potentilla argentea</i>	+	+	0	0
<i>Campanula patula</i>	+	+	0	0
<i>Veronica chamaedrys</i>	+	+	0	0
<i>Polygala vulgaris</i>	.	.	.	+	.	+	0	0
<i>Gypsophila muralis</i>	+	+	.	0	0
<i>Lythrum salicaria</i>	+	.	+	0	0
<i>Filago germanica</i>	.	.	.	+	.	+	0	0
<i>Hypochaeris radicata</i>	+	+	0	0
<i>Potentilla reptans</i>	.	.	.	+	+	0	0
<i>Lysimachia vulgaris</i>	.	.	.	+	+	0	0
<i>Stachys officinalis</i>	+	+	.	0	0
<i>Epilobium palustre</i>	.	+	+	0	0
<i>Primula vulgaris</i>	.	+	+	0	0
<i>Thymus pulegioides</i>	+	0	0
<i>Dipsacus fullonum</i>	+	0	0
<i>Origanum vulgare</i>	+	0	0
<i>Asperula cynanchica</i>	+	0	0
<i>Centaurium erythraea</i>	+	0	0
<i>Carlina acaulis</i>	+	0	0
<i>Peucedanum palustre</i>	+	0	0
<i>Geranium pratense</i>	+	.	.	.	0	0
<i>Scrophularia umbrosa</i>	+	0	0
<i>Erigeron canadensis</i>	+	.	.	.	0	0
<i>Carex remota</i>	+	0	0
<i>Verbascum phlomoides</i>	+	0	0
Harmful and toxic species																										
<i>Euphorbia cyparissias</i>	1	.	.	5	4	3	+	.	.	1	2	10	5	3	.	3	18	.	10	20	15	5	4.77	0	0	
<i>Pteridium aquilinum</i>	8	10	18	5	.	.	.	8	.	.	2	.	.	.	.	.	.	2.32	0	0
<i>Sambucus ebulus</i>	5	.	.	.	2	+	.	3	3	3	+	0.73	0	0	
<i>Ranunculus polyanthemos</i>	1	+	+	1	1	1	+	.	.	+	.	+	1	1	.	+	+	+	+	+	1	.	0.32	0	0	
<i>Eryngium campestre</i>	+	.	.	1	2	.	2	.	+	1	+	.	.	.	.	.	.	.	.	.	.	.	.	0.27	0	0
<i>Hypericum perforatum</i>	+	+	+	+	1	1	+	+	1	+	1	.	.	.	+	.	.	.	.	.	+	+	+	0.18	0	0

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
<i>Rumex conglomeratus</i>		2	+	.	.	.	.	+	.	1	.	.	.	+	1	+	.	+	+	+	.	.	.	0.18	0	0	
<i>Urtica dioica</i>		+	+	.	.	.	2	1	.	.	0.14	0	0
<i>Carduus acanthoides</i>		+	+	+	+	+	+	+	.	.	+	+	+	+	+	+	+	+	.	+	+	1	+	0.04	0	0	
<i>Carduus nutans</i>		+	.	+	+	+	.	.	0	0
<i>Cirsium arvense</i>		+	.	.	+	.	+	0	0
<i>Ranunculus repens</i>		+	.	+	+	0	0
<i>Stellaria graminea</i>		+	0	0
Shrub vegetation																											
<i>Prunus spinosa</i>		1	4	5	6	2	2	15	20	35	3	3	7	4	4	1	4	5	.	3	2	5	2	6.04	0	-	
<i>Rubus sulcatus</i>		6	7	40	20	5	6	3	5	5	2	2	1	2	2	1	1	1	1	+	3	1	6	5.45	0	-	
<i>Juniperus communis</i>		.	.	.	1	2	2	2	10	5	50	5	1	2	.	3	2	2	+	5	.	2	.	4.27	0	-	
<i>Rosa canina</i>		1	2	10	2	2	2	+	3	5	5	1	1	+	2	.	1	+	+	+	+	2	2	1.86	0	-	
<i>Crataegus monogyna</i>		1	2	5	1	+	1	+	2	.	.	1	.	+	+	.	+	.	.	+	.	.	.	.	0.59	0	-
<i>Vaccinium myrtillus</i>		1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0.04	0	-
<i>Cornus sanguinea</i>		1	+	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0.04	0	-
<i>Ligustrum vulgare</i>		+	+	0	-
<i>Corylus avellana</i>		+	0	-
<i>Clematis vitalba</i>		0	-
<i>Cornus mas</i>		+	0	-
TOTAL																										254.66	
V.P.																											50.93
V.P. appreciation																											GOOD

where: VP – pastoral value; PC – participation in the grassy area of each species (%); IC – forage quality index of each species.

Table 2

The pastoral value of *Festuca rupicola* grasslands

No. relevées		1	2	3	4	5	%PC	IC	PC x IC
GPS coordinates	Altitude (m)	465-505	600-650	585-635	465-505	480-505			
	Lat. N	46.58635	46.58588	46.57862	46.57120	46.57178			
	Long. E	22.23707	22.21090	22.20895	22.20412	22.20293			
Exposition		SE	SE	S	S	SV			
Slope (degree) (%)		21.24	24.31	23.18	22.22	27.96			
Herbaceous layer coverage (%)		100	100	100	100	100			
Shrubby layer (%)		20	20	18	20	25			
Area (m ²)		100	100	100	100	100			
	0	1	2	3	4	5	6	7	8
Poaceae									
<i>Festuca rupicola</i>		50	60	65	50	50	55	2	110
<i>Agrostis capillaris</i>		10	10	5	20	5	10	3	30
<i>Brachypodium pinnatum</i>		15	10	3	5	3	7.2	1	7.2
<i>Cynosurus cristatus</i>		1	.	.	1	1	0.6	3	1.8
<i>Anthoxanthum odoratum</i>		3	2	1	1	1	1.6	1	1.6
<i>Holcus lanatus</i>		1	.	.	.	+	0.2	2	0.4
<i>Poa compressa</i>		1	.	.	.	.	0.2	2	0.4
<i>Briza media</i>		1	.	.	.	.	0.2	1	0.2
<i>Phleum montanum</i>		+	.	2	0
<i>Calamagrostis epigejos</i>		.	2	1	1	15	3.8	0	0
<i>Dichanthium ischaemum</i>		.	2	1	5	10	3.6	0	0
Fabaceae									
<i>Trifolium campestre</i>		1	1	1	1	1	1	2	2
<i>Lotus corniculatus</i>		1	+	+	1	.	0.4	4	1.6
<i>Trifolium pratense</i>		1	.	.	.	.	0.2	5	1
<i>Trifolium alpestre</i>		+	1	1	.	+	0.4	2	0.8
<i>Trifolium hybridum</i>		+	.	.	+	+	.	4	0
<i>Trifolium medium</i>		+	.	+	+	+	.	2	0
<i>Dorycnium pentaphyllum</i>		1	1	1	2	2	1.4	0	0
Other families									
<i>Sanguisorba minor</i>		.	1	+	+	+	0.2	2	0.4
<i>Achillea millefolium</i>		1	+	+	+	+	0.2	2	0.4
<i>Galium verum</i>		1	.	.	+	.	0.2	1	0.2
<i>Plantago lanceolata</i>		+	+	+	+	.	.	2	0
<i>Daucus carota</i>		+	.	.	.	+	.	2	0
<i>Filipendula hexapetala</i>		.	.	+	.	+	.	1	0
<i>Cichorium intybus</i>		.	.	+	.	.	.	1	0
<i>Pimpinella saxifraga</i>		.	.	+	.	+	.	1	0
<i>Carex caryophylla</i>		1	1	4	2	2	2	0	0
<i>Thymus glabrescens</i>		1	.	+	2	2	1	0	0
<i>Hieracium pilosella</i>		+	.	1	2	1	0.8	0	0
<i>Teucrium chamaedrys</i>		1	2	+	+	+	0.6	0	0
<i>Potentilla argentea</i>		+	1	+	1	+	0.4	0	0
<i>Fragaria viridis</i>		1	0.2	0	0
<i>Agrimonia eupatoria</i>		1	.	.	.	+	0.2	0	0
<i>Clinopodium vulgare</i>		+	.	.	+	1	0.2	0	0
<i>Centaurea scabiosa</i>		+	.	+	1	+	0.2	0	0
<i>Verbascum phlomoides</i>		.	1	.	.	.	0.2	0	0
<i>Carlina vulgaris</i>		+	.	+	+	+	.	0	0
<i>Asperula cynanchica</i>		.	.	+	+	+	.	0	0
<i>Thymus comosus</i>		.	+	+	+	.	.	0	0
<i>Gypsophila muralis</i>		+	+	+	.	.	.	0	0
<i>Geranium pusillum</i>		.	+	.	+	.	.	0	0
<i>Helianthemum nummularium</i>		.	+	0	0
<i>Thymus pannonicus</i>		+	0	0
<i>Peucedanum oreoselinum</i>		+	0	0
<i>Dianthus carthusianorum</i>		+	0	0
<i>Arabis auriculata</i>		.	+	0	0
<i>Erigeron annuus</i>		+	0	0
<i>Stachys officinalis</i>		+	0	0
<i>Primula vulgaris</i>		+	.	0	0
Harmful and toxic species									
<i>Euphorbia cyparissias</i>		.	5	15	5	2	5.4	0	0
<i>Pteridium aquilinum</i>		5	.	.	.	3	1.6	0	0
<i>Carduus acanthoides</i>		1	+	+	+	.	0.2	0	0
<i>Carduus nutans</i>		1	.	.	.	.	0.2	0	0

0	1	2	3	4	5	6	7	8	
<i>Hypericum perforatum</i>	1	+	-	-	-	0.2	0	0	
<i>Rumex conglomeratus</i>	-	+	+	-	-	-	0	0	
<i>Ranunculus polyanthemus</i>	+	-	-	-	+	-	0	0	
<i>Cirsium arvense</i>	+	-	-	-	-	-	0	0	
Shrub vegetation									
<i>Juniperus communis</i>	12	10	15	5	8	10	0	-	
<i>Prunus spinosa</i>	5	5	1	15	15	8.2	0	-	
<i>Rosa canina</i>	3	1	1	+	2	1.4	0	-	
<i>Ruscus aculeatus</i>	-	3	-	-	-	0.6	0	-	
<i>Rubus sulcatus</i>	-	1	1	-	-	0.4	0	-	
<i>Cornus mas</i>	-	-	-	-	+	-	0	-	
<i>Ligustrum vulgare</i>	-	-	-	-	+	-	0	-	
<i>Corylus avellana</i>	-	-	-	-	+	-	0	-	
TOTAL								158	
V.P.								31.6	
V.P. appreciation	MIDDLE								

where: VP – pastoral value; PC – participation in the grassy area of each species (%); IC – forage quality index of each species.

CONCLUSIONS

The pastoral value of *Agrostis capillaris* and *Festuca rubra* grasslands from Finiş Valley is good, the pastoral value pointer has values of 50.93. The floristic composition of these grasslands is made up of a total of 122 species (grasses 20 species, legume 9 species, other families 69 species, harmful-toxic plants 13 species, shrubs, suffruticous 11 species). The quality of these grasslands can be improved by combating harmful and toxic plants, deforestation of invasive shrub species, overseeding and fertilization.

Festuca rupicola grasslands are of medium pastoral value (V.P.=31.6), occupy the sunny, moderately inclined slopes. In the floristic composition of these grasslands there is a number of 65 species, from which 11 species of grasses, 7 species of legume, 31 species from other families, 8 harmful-toxic species and 8 species of shrubs. These grasslands are not currently grazed, and in the future there will be works of overseeding with valuable forage species, after the fertilization work, the control of harmful and toxic plants, deforestation of the shrub vegetation. It will be pursued in plots where species from the red lists are present (*Thymus comosus*, *Ruscus aculeatus*), protecting them by selective application of grassland improvement.

REFERENCES

1. Ciocârlan V., 2009, Flora ilustrată a României. *Pteridophyta et Spermatophyta*. Editura Ceres, Bucureşti.
2. Cristea, V., 1993, Fitocenologie și vegetația României. Îndrumător de lucrări practice. Univ. Babeş-Bolyai, Cluj-Napoca, 149p.
3. Cristea V., Gafta D., Pedrotti F., 2004, Fitosociologie. Edit. Presa Universitară Clujeană, Cluj-Napoca, 233p.

4. Doniță N., Popescu A., Paucă-Comănescu M., Mihăilescu S., Biriș I., A., 2005, Habitatele din România. Ed. Tehnică Silvică, București, 496p.
5. Marușca T., Blaj A., V., Rusa M., 2012, Tehnologiile de creștere a valorii pastorale pentru pajiștile montane. Academia de Științe Agricole și Silvicultură Gheorghe Ionescu Șișești, 50p.
6. Marușca T., Mocanu V., Haș C., E., Tod A., M., Andreoiu C., A., Dragoș M., M., Blaj A., V., Ene A., T., Silistru D., Ichim E., Zevedei M., P., Constantinescu S., C., Tod V., S., 2014, Ghid de întocmire a amenajamentelor pastorale. Editura Capolavoro, Brașov, 248p.
7. Pășcuț C., 2010, The study of vegetal communities in Codru-Moma Mountains. Analele Universității din Oradea, Fascicula: Protecția Mediului, Vol. XV. Editura Universității din Oradea, Oradea: pp.513-518.
8. Pășcuț C., 2011, Phytocoenologic study of *Agrostis capillaris* with *Anthoxanthum odoratum* grasslands in Codu-Moma Mountains (NW Romania), „International Symposia - Risk Factors for Environment and Food Safety & Natural resources and sustainable development”, Fascicula : Protecția Mediului, I.S.S.N. 1224-6255, vol. XVII, pp.243-250.
9. Pășcuț, C., 2011, Phytocoenologic study concerning the acidophilous grasslands of Codru-Moma Mountains (North-West of Romania), „International Symposia - Risk Factors for Environment and Food Safety & Natural resources and sustainable development”, Fascicula: Protecția Mediului, I.S.S.N. 1224-6255, vol. XVII, pp.511-518.
10. Pășcuț C., G., 2012, Flora și vegetația Munților Codru-Moma. Rezumatul tezei de doctorat, Oradea, 527p.
11. Rotar I., Vidican R., Sima N., 2009, Cultura pajiștilor și a plantelor furajere. Editura Risoprint, Cluj-Napoca, 252p.
12. Sârbu I., Ștefan N., Oprea A., 2013, Plante vasculare din România. Determinator ilustrat de teren. Editura Victor B Victor, București, 1317p.