

REVIEW OF THE WEED FLORA OF MEADOWS AND PASTURES OF VLASINA PLAIN

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Meadows of lowland and upland areas of Vlasina Plain represent a significant natural plant resource. A botanical study of the Vlasina Plain region conducted by RANĐELOVIĆ (2002) identifies four lowland meadow communities (ass. *Equiseto-Scirpetum silvaticae* Šegulja, ass. *Polygono-Scirpetum silvaticae* Schw., ass. *Brachythecio-Menthetum longifoliae* V. Rand. and ass. *Deschampsietum caespitosae* H-ić.) and six phytocoenoses of hilly-mountainous meadows and pastures (ass. *Diantho-Armerietum rumelicae* N. Rand., ass. *Festuco nigrescenti-Nardetum strictae* N. Rand., ass. *Lino-Nardetum strictae* Rexp. et N. Rand., ass. *Thymo-Poetum violaceae* Mic., ass. *Festucetum paniculatae* Horv. and ass. *Centaurio-Festucetum validae* N. Rand.).

Besides identifying the weed species that participate in the grassland communities of Vlasina Plain, this study deals with all relevant parameters concerning that particular plant category, including primarily: taxonomic analysis, quantitative representation in certain grassland communities, life forms (biological spectrum), phyto-geographical characteristics (floral elements), ecological and biological features and categorization according to their harmful effect (very poisonous, weakly poisonous and useless species).

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This first brief report contains data on the weed flora of meadows and pastures of Vlasina Plain, while the main subject of a second communication (in preparation) would be focused on detailed analysis of weed species in the region, their biological characteristics and specific features.

Key words: meadow and pasture plant communities, Vlasina Plain, grassland weeds, floristic composition, quantitative representation

INTRODUCTION

According to a comprehensive phytocoenological study conducted by RANĐELOVIĆ (2002), Vlasina Plain has ten meadow and pastures communities, four of which spread in the lowland and six in the mountainous region (ass. *Equiseto-Scirpetum silvaticae*, ass. *Polygono-Scirpetum silvaticae*, ass. *Brachythecio-Menthetum longifoliae* and ass. *Deschampsietum caespitosae* and ass. *Diantho-Armerietum rumelicae*, ass. *Festuco nigrescenti-Nardetum strictae*, ass. *Lino-Nardetum strictae*, ass. *Thymo-Poetum violaceae*, ass. *Festucetum paniculatae* and ass. *Centaurio-Festucetum validae*, respectively).

Besides identifying the weed species found in the grassland communities of Vlasina Plain, this study covers all parameters relevant to this plant category, namely: taxonomical analysis, quantitative representation in certain grassland communities, life forms (biological spectra), phyto-geographical characteristics (floral elements), ecological and biological features and categorization according to the degree of harmful effect.

The weed flora present in grassland communities of southeast Serbia (Vlasina Plain) was determined and analysed based on theoretical and scientific principles employed by KOJIĆ and collaborators (KOJIĆ *et al* 1992, 1993, 1994, 2000, 2001, KOJIĆ and VRBNIČANIN, 1998).

This preliminary report includes a list of grassland weeds identified in meadow and pasture phytocoenoses of Vlasina Plain.

MATERIAL AND METHODS

Meadow and pasture communities were described based on the principles and methods of the Swiss-French phytocoenological school (BRAUN-BLANQUET, 1964).

Meadow and pasture weed categories were analysed within a previously determined theoretical framework (KLAPP, 1986, CAPUTE, 1966, ŠOŠTARIĆ-PISAČIĆ and KOVAČEVIĆ, 1968 and KOJIĆ *et al*, 2001).

RESULTS AND DISCUSSION

Data on the quantitative participation of weed species in the floristic composition of meadow and pasture plant communities of Vlasina Plain are presented in Tables 1-10.

Tab. 1. Weed species and their participation in ass. *Equiseto-Scirpetum silvaticae*

Species	Presence	Abundance
<i>Scirpus silvaticus</i>	V	4 - 5
<i>Equisetum palustre</i>	V	+ - 2
<i>Deschampsia caespitosa</i>	V	+ - 1
<i>Juncus acutiflorus</i>	IV	+ - 1
<i>Cirsium palustre</i>	IV	+ - 1
<i>Mentha longifolia</i>	IV	+ - 2
<i>Rumex acetosa</i>	IV	+
<i>Lychnis flos-cuculi</i>	IV	+
<i>Juncus effusus</i>	IV	+ - 2
<i>Lysimachia nummularia</i>	IV	+ - 1
<i>Juncus articulatus</i>	IV	+ - 1
<i>Ranunculus acris</i>	IV	+ - 1
<i>Galium palustre</i>	IV	+ - 1
<i>Prunella vulgaris</i>	IV	+
<i>Holcus lanatus</i>	IV	+
<i>Juncus conglomeratus</i>	IV	+ - 1
<i>Dactylorhiza maculata</i>	III	+
<i>Ranunculus repens</i>	III	1
<i>Lysimachia vulgaris</i>	III	+ - 1
<i>Veratrum album</i>	III	+
<i>Juncus thomasi</i>	III	+ - 1
<i>Potentilla erecta</i>	III	+ - 1
<i>Cardamine pratensis</i>	II	+
<i>Carex ovalis</i>	II	+

<i>Heleocharis palustris</i>	II	+
<i>Equisetum fluvatile</i>	II	+
<i>Equisetum silvaticum</i>	II	+
<i>Carex nigra</i>	II	+
<i>Hypericum maculatum</i>	II	+
<i>Climacium dendroides</i>	II	+ - I
<i>Juncus inflexus</i>	I	+
<i>Centaurea jacea</i>	I	+
<i>Rumex hydrolapathum</i>	I	+
<i>Calliargonela cuspidata</i>	I	+
<i>Philonotis fontana</i>	I	+

Tab. 2. Weed species and their participation in ass. *Polygono-Scirpetum silvaticae*

Species	Presence	Abundanse
<i>Scirpus silvaticus</i>	V	3 - 5
<i>Polygonum bistorta</i>	IV	+ - 2
<i>Crepis paludosa</i>	V	+ - 1
<i>Carex nigra</i>	IV	+ - 1
<i>Lychnis flos-cuculi</i>	III	+ - 1
<i>Carex ovalis</i>	III	+ - 1
<i>Eriophorum angustifolium</i>	III	+
<i>Rumex balcanicus</i>	II	1 - 2
<i>Cirsium palustre</i>	II	+ - 1
<i>Geum rivale</i>	II	+ - 1
<i>Briza media</i>	II	+
<i>Juncus effusus</i>	II	+
<i>Ranunculus repens</i>	II	+
<i>Mentha longifolia</i>	II	+ - 1
<i>Juncus articulatus</i>	II	+ - 1
<i>Ranunculus acris</i>	II	+
<i>Galium palustre</i>	II	+ - 1
<i>Carex echinata</i>	II	+
<i>Potentilla erecta</i>	II	+ - 1
<i>Veratrum album</i>	II	+
<i>Calliargonela cuspidata</i>	II	+
<i>Philonotis fontana</i>	II	+
<i>Equisetum fluviatile</i>	I	+

<i>Rumex patientia</i>	I	+
<i>Rumex acetosa</i>	I	+
<i>Equisetum palustre</i>	I	+
<i>Juncus acutiflorus</i>	I	+
<i>Deschampsia caespitosa</i>	I	1
<i>Lysimachia vulgaris</i>	I	+
<i>Prunella vulgaris</i>	I	+
<i>Holcus planatus</i>	I	+
<i>Carex vesicaria</i>	I	+
<i>Juncus conglomeratus</i>	I	+
<i>Pteridium aquilinum</i>	I	+
<i>Galeopsis tetrahit</i>	I	+
<i>Carex pallescens</i>	I	+

Tab. 3. Weed species and their participation in ass. *Brachytecio-Menthetum longifoliae*

Species	Presence	Abundance
<i>Mentha longifolia</i>	V	3 - 5
<i>Crepis paludosa</i>	V	+
<i>Scirpus silvaticus</i>	IV	+ - 1
<i>Juncus effusus</i>	IV	+ - 2
<i>Rumex acetosa</i>	IV	+ - 1
<i>Brachytecium rivulare</i>	IV	+ - 2
<i>Galium palustre</i>	IV	+ - 1
<i>Potentilla erecta</i>	IV	+
<i>Marschanthia polymorpha</i>	II	+ - 1
<i>Ranunculus acris</i>	II	+ - 1
<i>Equisetum fluviatile</i>	II	1 - 2
<i>Carex rostrata</i>	II	+
<i>Rumex balcanicus</i>	II	+
<i>Lychnis flos-cuculi</i>	I	+
<i>Equisetum palustre</i>	I	+
<i>Deschampsia caespitosa</i>	II	+ - 1
<i>Juncus inflexus</i>	I	+
<i>Carex nigra</i>	I	+
<i>Rhinanthus minor</i>	I	+

Tab. 4. Weed species and their participation in ass. *Deschampsietum caespitosae*

Species	Presence	Abundance
<i>Deschampsia caespitosa</i>	V	3 - 5
<i>Ranunculus acer</i>	V	+ - 1
<i>Galium palustre</i>	V	+ - 2
<i>Equisetum palustre</i>	IV	+ - 2
<i>Ranunculus repens</i>	IV	+ - 2
<i>Rhinanthus minor</i>	IV	+ - 1
<i>Holcus lanatus</i>	IV	+ - 1
<i>Stellaria graminea</i>	IV	+ - 1
<i>Juncus effusus</i>	III	+ - 1
<i>Prunella vulgaris</i>	III	+ - 1
<i>Carex ovalis</i>	III	+ - 1
<i>Oenanthe banatica</i>	III	+ - 1
<i>Juncus articulatus</i>	III	+
<i>Juncus conglomeratus</i>	III	+ - 1
<i>Galium verum</i>	III	+
<i>Cardamine pratensis</i>	II	+ - 1
<i>Lysimachia vulgaris</i>	II	+ - 1
<i>Succisa pratensis</i>	II	+
<i>Lythrum salicaria</i>	II	+
<i>Cirsium palustre</i>	II	+ - 1
<i>Carex nigra</i>	II	+
<i>Juncus thomasi</i>	II	+
<i>Potentilla erecta</i>	V	+ - 1
<i>Gratiola officinalis</i>	I	+
<i>Valeriana officinalis</i>	I	+ - 1
<i>Lychnis flos-cuculi</i>	I	+
<i>Centaurea jacea</i>	I	+
<i>Bromus racemosus</i>	I	+
<i>Mentha longifolia</i>	I	+
<i>Carex tomentosa</i>	I	+
<i>Crepis biennis</i>	I	+
<i>Lysimachia nummularia</i>	I	+
<i>Crepis paludosa</i>	I	+
<i>Mentha aquatica</i>	I	+
<i>Lycopus europaeus</i>	I	+
<i>Cirsium rivulare</i>	I	+
<i>Dactylorhiza cordygwra</i>	I	+
<i>Potentilla aplustris</i>	I	+
<i>Carex echinata</i>	I	+

<i>Carex pallescens</i>	I	I
<i>Hypericum maculatum</i>	I	+
<i>Briza media</i>	I	+
<i>Hypericum perforatum</i>	I	+
<i>Veratrum lobelianum</i>	I	+
<i>Luzula campestris</i>	I	+
<i>Viola canina</i>	I	+
<i>Viola arvensis</i>	I	+
<i>Cirsium graecum</i>	I	+
<i>Rumex acetosa</i>	I	+

Tab. 5. Weed species and their participation in ass. *Diantho-Armerietum rumelicacae*

Species name	Presence	Abundance
<i>Polygala major</i>	V	1 - 2
<i>Thymus moesiacus</i>	V	+ - 1
<i>Leontodon hypsidus</i>	V	+ - 2
<i>Euphrasia pectinata</i>	V	+ - 2
<i>Rhinanthus minor</i>	V	+ - 3
<i>Briza media</i>	V	+ - 2
<i>Thymus pulegioides</i>	V	+ - 2
<i>Lecantheum montanum</i>	V	+ - 2
<i>Scleranthus perennis</i>	V	+ - 1
<i>Genista sagittalis</i>	V	+ - 2
<i>Stellaria graminea</i>	V	+ - 1
<i>Dianthus cruentus</i>	IV	+ - 1
<i>Viola tricolor</i>	IV	+ - 1
<i>Hieracium bauhini</i>	IV	+ - 1
<i>Carlina vulgaris</i>	IV	+ - 1
<i>Orobanche gracilis</i>	IV	+
<i>Linum catharticum</i>	IV	+ - 1
<i>Luzula campestris</i>	IV	+ - 1
<i>Crepis conyzifolia</i>	IV	+ - 1
<i>Polygala vulgaris</i>	IV	+ - 1
<i>Cerastium caespitosum</i>	IV	+ - 1
<i>Crepis biennis</i>	IV	+ - 1
<i>Verbascum longifolium</i>	IV	+ - 1
<i>Rumex acetosella</i>	IV	+ - 1
<i>Veronica austriaca</i>	III	+ - 1
<i>Helianthemum nummularium</i>	III	+ - 1
<i>Ajuga genevensis</i>	III	+ - 1
<i>Galium verum</i>	III	+
<i>Knautia arvensis</i>	III	+ - 1

<i>Potentilla alba</i>	II	+
<i>Orchis coriophora</i>	II	+ - 1
<i>Moenchia mantica</i>	II	+ - 1
<i>Erigeron acer</i>	II	+
<i>Carlina acaulis</i>	II	+
<i>Ranunculus bulbosus</i>	II	+
<i>Hieracium pilosella</i>	II	1
<i>Ranunculus montanus</i>	II	+
<i>Prunella vulgaris</i>	II	+ - 1
<i>Dianthus deltoides</i>	II	+
<i>Peucedanum aquilinum</i>	II	+
<i>Hieracium caespitosum</i>	II	+ - 1
<i>Linum hologynum</i>	II	+
<i>Silene vulgaris</i>	II	+
<i>Stachys germanica</i>	II	+
<i>Gymnadenia conopsea</i>	II	+
<i>Veronica hamaedrys</i>	II	+
<i>Asperula cynanchica</i>	I	+
<i>Koeleria micrantha</i>	I	+
<i>Potentilla argentea</i>	I	+
<i>Euphorbia cyparissias</i>	I	1
<i>Jasione montana</i>	I	1
<i>Filipendula vulgaris</i>	I	+
<i>Plantago media</i>	I	+
<i>Ornithogalum orthophyllum</i>	I	+
<i>Gentiana utriculosa</i>	I	+
<i>Nardus stricta</i>	I	+
<i>Pedicularis heterodonta</i>	I	+
<i>Centaurea jacea</i>	I	1
<i>Rumex acetosa</i>	I	+
<i>Hieracium acuminatum</i>	I	+
<i>Primula vulgaris</i>	I	+
<i>Luzula luzuloides</i>	I	+
<i>Rosa pendulina</i>	I	+
<i>Malva moschata</i>	I	+
<i>Cirsium grecescui</i>	I	+
<i>Lychnis viscaria</i>	I	+
<i>Rorippa pyrenaica</i>	I	+
<i>Salvia verticillata</i>	I	+
<i>Veronica arvensis</i>	I	+

Tab. 6. Weed species and their participation in ass. *Festuco nigrescetni-Nardetum strictae*

Species	Presence	Abundance
<i>Thymus praecox</i> ssp. <i>jankae</i>	V	1 - 3
<i>Thymus moesiacus</i>	V	1 - 3
<i>Nardus stricta</i>	V	3 - 5
<i>Deschampsia flexuosa</i>	V	1 - 2
<i>Genista sagittalis</i>	V	1 - 2
<i>Potentilla erecta</i>	V	1 - 2
<i>Hieracium pilosella</i>	V	1
<i>Viola canina</i>	V	+ - 1
<i>Luzula campestris</i>	V	+ - 1
<i>Euphrasia rostkoviana</i>	V	+ - 1
<i>Stellaria graminea</i>	V	+ - 1
<i>Cerastium fontanum</i>	IV	+ - 1
<i>Briza media</i>	IV	+ - 1
<i>Cerastium caespitosum</i>	IV	+
<i>Crepis conyzifolia</i>	III	+ - 1
<i>Silene roemerii</i>	III	+ - 2
<i>Hypericum maculatum</i>	III	+ - 1
<i>Leontodon hispidus</i>	III	+ - 1
<i>Scambiosa columbaria</i>	III	+ - 1
<i>Rhinanthus minor</i>	III	+
<i>Vaccinium myrtillus</i>	III	+ - 1
<i>Rumex acetosella</i>	III	+ - 1
<i>Veronica chamaedrys</i>	III	+ - 1
<i>Verbascum adamovicii</i>	II	+
<i>Ranunculus montanus</i>	II	+
<i>Polygala vulgaris</i>	II	+
<i>Leucanthemum montanum</i>	II	+
<i>Polygala major</i>	II	+
<i>Hypericum barbatum</i>	II	+ - 1
<i>Dianthus deltoides</i>	II	+ - 1
<i>Crocus veluchensis</i>	II	+ - 1
<i>Verbascum longifolium</i>	II	+
<i>Carex flava</i>	II	+
<i>Orobanche gracilis</i>	I	+
<i>Carlina vulgaris</i>	I	+
<i>Prunella vulgaris</i>	I	+
<i>Rumex acetosa</i>	I	+
<i>Stachys officinalis</i>	I	+
<i>Knautia arvensis</i>	I	+
<i>Ornithogalum ortophyllum</i>	I	+

Tab. 7. Weed species and their participation in ass. *Lino-Nardetum strictae*

Species	Presence	Abundance
<i>Linum capitatum</i>	V	2 - 3
<i>Thymus praecox</i> ssp. <i>jankae</i>	V	1 - 2
<i>Hieracium hoppaeaeum</i>	V	+ - 2
<i>Genista depressa</i>	V	+ - 1
<i>Nardus stricta</i>	V	2 - 5
<i>Potentilla erecta</i>	V	1 - 2
<i>Ranunculus montanus</i>	V	1
<i>Deschampsia flexuosa</i>	V	+ - 2
<i>Genista sagittalis</i>	V	+ - 1
<i>Luzula campestris</i>	V	+ - 1
<i>Peucedanum oligophyllum</i>	IV	+
<i>Verbascum longifolium</i>	IV	+
<i>Carex caryophyllea</i>	III	+ - 5
<i>Viola canina</i>	III	+ - 1
<i>Vaccinium myrtillus</i>	III	1
<i>Vaccinium uliginosum</i>	III	+
<i>Knautia magnifica</i>	II	+
<i>Carex ericetorum</i>	II	+
<i>Luzula luzuloides</i>	II	1
<i>Crocus veluchensis</i>	I	+
<i>Hieracium pilosella</i>	I	1

Tab. 8. Weed species and their participation in ass. *Thymo-Poetum violaceae*

Species	Presence	Abundance
<i>Thymus praecox</i> ssp. <i>jankae</i>	V	1 - 2
<i>Crocus veluchensis</i>	V	1
<i>Ranunculus montanus</i>	V	1 - 2
<i>Deschampsia flexuosa</i>	V	+ - 1
<i>Rumex acetosella</i>	V	+
<i>Euphrasia pectinata</i>	IV	+
<i>Linum capitatum</i>	III	+ - 1
<i>Luzula luzuloides</i>	III	+ - 1
<i>Veratrum album</i>	III	+
<i>Verbascum longifolium</i>	II	+
<i>Luzula campestris</i>	II	+
<i>Gentiana asclepiadea</i>	II	+
<i>Hieracium pilosella</i>	II	+
<i>Potentilla aurea</i>	II	+
<i>Peucedanum oligophyllum</i>	I	+

Tab. 9. Weed species and their participation in ass. *Festucetum paniculatae*

Species	Presence	Abundance
<i>Thymus praecox</i> ssp. <i>jankae</i>	V	1 - 3
<i>Centaurea nyssana</i>	V	+ - 1
<i>Verbascum longifolium</i>	V	+
<i>Vaccinium myrtillus</i>	V	1 - 3
<i>Hypericum maculatum</i>	V	+
<i>Luzula luzuloides</i>	IV	+ - 1
<i>Carex montana</i>	III	+ - 2
<i>Ranunculus sartorianus</i>	III	+
<i>Viola canina</i>	III	+ - 1
<i>Potentilla erecta</i>	III	+ - 1
<i>Cerastium fontanum</i>	III	+ - 1
<i>Rumex acetosella</i>	III	+ - 1
<i>Ornithogalum orthophyllum</i>	III	+ - 1
<i>Peucedanum oligophyllum</i>	II	+ - 1
<i>Linum capitatum</i>	II	1
<i>Linaria dalmatica</i>	II	1
<i>Nardus stricta</i>	II	1 - 2
<i>Luzula campestris</i>	II	1
<i>Genista sagittalis</i>	II	+ - 1
<i>Luzula multuiflora</i>	II	+ - 1
<i>Potentilla aurea</i>	II	+
<i>Euphrasia rostkoviana</i>	II	+
<i>Scleranthus neglectus</i>	I	+
<i>Knautia magnifica</i>	I	+
<i>Hieracium pilosella</i>	I	1
<i>Deschampsia flexuosa</i>	I	1
<i>Carex caryophyllea</i>	I	+
<i>Galium verum</i>	I	+
<i>Dianthus cruentus</i>	I	+

Tab. 10. Weed species and their participation in ass. *Centaureo-Festucetum validae*

Species	Presence	Abundance
<i>Centaurea nyssana</i>	V	+ - 2
<i>Thymus praecox</i> ssp. <i>jankae</i>	V	1 - 2
<i>Crocus veluchensis</i>	V	+ - 2
<i>Peucedanum oligophyllum</i>	V	+ - 1
<i>Linaria dalmatica</i>	V	+ - 1
<i>Deschampsia flexuosa</i>	V	1 - 2
<i>Veratrum album</i>	V	+ - 1
<i>Luzula luzuloides</i>	V	+ - 1
<i>Nardus stricta</i>	V	+ - 1
<i>Vaccinium myrtillus</i>	V	+ - 1
<i>Hypericum maculatum</i>	V	+ - 1
<i>Calamagrostis arundinacea</i>	V	1 - 3
<i>Crepis viscidula</i>	IV	+ - 1
<i>Luzula campestris</i>	IV	+ - 1
<i>Linum capitatum</i>	III	+ - 1
<i>Potentilla erecta</i>	III	+ - 1
<i>Gentiana asclepiadea</i>	III	+ - 1
<i>Crepis conyzifolia</i>	III	+ - 1
<i>Genista sagittalis</i>	III	+ - 1
<i>Brachypodium pinatum</i>	II	+ - 1
<i>Verbascum longifolium</i>	II	+
<i>Euphrasia stricta</i>	II	+
<i>Viola tricolor</i>	II	+
<i>Leontodon hispidus</i>	II	+
<i>Hieracium pilosella</i>	II	+
<i>Geranium sanguineum</i>	II	+ - 1
<i>Rumex acetosella</i>	II	+
<i>Orchis coriophora</i>	II	+
<i>Knautia magnifica</i>	I	+
<i>Primula veris</i>	I	+
<i>Viola canina</i>	I	+
<i>Polygonum alpinum</i>	I	1

The results on weeds represented in the meadow and pasture communities of Vlasina Plain (Tab. 1-10) show a high number of weed species found in almost all analysed grassland associations. Furthermore, the determined weed species had high abundance and cover degree values.

In the association *Equiseto-Scirpetum silvaticae*, 40 weed species were identified among a total of 62 species quoted for this phytocoenosis (64.5 %). Fifteen weed species had the highest presence degree (IV and V).

Participation of weed species (36 species) in the floristic composition of the association *Polygono-Scirpetum* (60 species) was 60 %.

Stands of the plant community *Brachytecio-Menthetum longifoliae* include 19 weed species in their floristic spectrum, or 57.6 % of the total number of species in the association.

Ass. *Deschampsietum caespitosae* includes a total of 69 species, 49 of which are considered as weeds (71 %). Seven weed species expressed the highest degree of presence (V and IV).

The mountainous grassland community *Diantho-Armerietum rumelicae* is characterized by high plant diversity – a total of 109 species was determined in its floristic composition. The participation of weed species was again rather high (69 weed species, i.e. 62.7 %).

Considering the economical importance of surveyed grassland communities, the ass. *Festuco nigrescenti-Nardetum strictae* may be described as poor in quality since the overall number of 59 coenobionts include 40 weed species (67.8 %). This relatively high number of weed species is also accompanied by high presence and abundance.

The ass. *Lino-Nardetum strictae* included in the investigated area only 44 species, almost half of which were weeds (21 species, or 48 %).

Stands of the ass. *Thymo-Poetum violaceae* were characterized by low diversity. Their floristic spectrum comprised only 30 species, and their weed component accounted for 50%.

The meadow association *Festucetum paniculatae* was found to include 40 plant species, of which 30 species (75 %) fall into the weed category.

Low quality was also found in stands of the ass. *Centaureo-Festucetum valida*. Weed species accounted for 64 %, and 11 of them showed the highest degree of presence.

CONCLUSION

Meadow and pasture communities of Vlasina Plain represent a significant natural resource, which is evident from the high number of plant species in their floristic composition. However, the weed component was found to be more or less dominant in all analysed grassland phytocoenoses, which lowers their quality value.

Despite the significant plant diversity, the general impression of low utility value of meadows and pastures on Vlasina Plain is further strengthened by a lack of leguminous species that are considered to be the most favourable forage plants on grasslands. On the other hand, it is noteworthy that meadow-pasture communities with dominating *Nardus stricta*, a species of poor quality from the aspect of livestock nutrition, occupy huge areas in the investigated region.

Viewed from the aspect of weed science, the lowest quality values were found in stands of the following associations: ass. *Festuco nigrescenti-Nardetum strictae*, *Lino-Nardetum strictae*, *Centaureo-Festucetum validae*, *Deschampsietum caespitosae*, *Equiseto-Scirpetum silvaticae* and *Polygono-Scirpetum silvaticae*.

Based on the analysis of weeds represented in the grassland communities of Vlasina Plain, it is our general opinion that adequate methods of melioration need to be applied in order to improve the quality of fodder resources.

REFERENCES

- BRAUN-BLANQUET, J. (1964): Pflanzensociologie. Grundzuge die Vegetationskunde. Wien-New York.
- CAPUTA, J. (1966): Contribution a l'etude de croissance du gazon de paturages nat differentes altitudes. Recherche agron.en Suisse 5, 293-426.
- KLAPP, E. (1986): Wiesen und Weiden. Zweite Auflage, Verlag Paul Parey, Berlin und Hamburg.
- KOJIĆ, M., S. MRFAT-VUKELIĆ, S. AJDER (1992): Korovi na travnjacima – Osnovne karakteristike, stanje i perspektive daljih istraživanja. VII Simp. o krmnom bilju, Kruševac.
- KOJIĆ, M., S. MRFAT-VUKELIĆ, S. AJDER (1993): Stanje i problemi proučavanja korova na travnjacima. Acta herbol., Vol. 2, No 1, 25-36.
- KOJIĆ, M., S. VRBNIČANIN, Z. DAJIĆ, S. MRFAT-VUKELIĆ (2000): Korovska flora prirodnih travnjaka Srbije. VI Kongres o korovima, Banja Koviljača, 163-184.
- KOJIĆ, M., Z. DAJIĆ, S. AJDER, S. MRFAT-VUKELIĆ (1994): Zastupljenost, osnovne karakteristike i značaj korova prirodnih travnjaka Srbije. Acta herbol., Vol. 3, No 1, 49-56.
- KOJIĆ, M., S. VRBNIČANIN (1998): Agrestal, ruderal, grass and aquatic weeds in Serbia. Acta herbol., Vol. 7, No 1-2, 7-35.
- KOJIĆ, M., S. MRFAT-VUKELIĆ, S. VRBNIČANIN, Z. DAJIĆ, S. STOJANOVIĆ (2001): Korovi prirodnih travnjaka Srbije. Izd. "Srbija", Beograd.
- MRFAT-VUKELIĆ, S., M. KOJIĆ, S. AJDER, Z. DAJIĆ (1996): Biodiverzitet korovske flore livadske vegetacije Srbije. V Kongres o korovima, Banja Koviljača, 143-169.
- ŠOŠTARIĆ-PISAČIĆ, K., J. KOVAČEVIĆ (1968): Travnjačka flora i njena poljoprivredna vrijednost. Izd. "Znanje", Zagreb.

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KOROVI LIVADA I PAŠNJAKA VLASINSKE VISORAVNIMomčilo KOJIĆ¹, Vladimir RANDELOVIĆ², Zora DAJIĆ¹ i Ivan ŠOŠTARIĆ¹¹ Poljoprivredni fakultet, 11080 Zemun-Beograd² Prirodno-matematički fakultet, 18000 Niš, Jugoslavija

I z v o d

Dolinske i brdske, odnosno, planinske livade i pašnjaci predstavljaju značajne prirodne biljne resurse Vlasinske visoravni. Prema istraživanjima V. Randelovića (2002) na ovom području zastupljene su 4 biljne zajednice dolinskih livada (ass. *Equiseto-Scirpetum silvaticae* Šegulja, ass. *Polygono-Scirpetum silvaticae* Schw., ass. *Brachythecio-Menthetum longifoliae* V. Rand. i ass. *Deschampsietum caespitosae* H-ić) i 6 fitocenoza planinskih livada i pašnjaka (ass. *Diantho-Armerietum rumelicae* N. Rand., ass. *Festuco nigrescenti-Nardetum strictae* N. Rand., ass. *Lino-Nardetum strictae* Rexp. et N. Rand., ass. *Thymo-Poetum violaceae* Mic., ass. *Festucetum paniculatae* Horv. i ass. *Centaurio-Festucetum validae* N. Rand.). Pored identifikacije travnjačkih korovskih vrsta u livadskim i pašnjačkim zajednicama Vlasinske visoravni, proučeni su i analizirani svi važniji parametri koji se odnose na ovu kategoriju biljaka, kao što su: taksonomska analiza, kvantitativna zastupljenost u pojedinim travnjačkim fitocenzama, kategorizacija korova prema štetnosti (vrlo otrovne, slabo otrovne, bezvredne vrste), ekološke i biološke osobine, pripadnost odgovarajućim životnim oblicima (biološki spektar), fitogeografske karakteristike (udeo pojedinih geoelemenata).

U prvom saopštenju, ovom prilikom, dat je samo pregled korovskih vrsta u livadskim i pašnjačkim fitocenzama Vlasinske visoravni, dok će se u drugom delu ove studije analizirati karakteristike i specifičnosti pojedinih travnjačkih korova u livadskim i pašnjačkim zajednicama na području Vlasinske visoravni.

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