

A NEW LOCALITY FOR THE ASS. *ACORO-GLYCERIETUM MAXIMAE* SLAVNIĆ 1956 (*PHRAGMITION*) IN CROATIA

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The *Acoro-Glycerietum maximae* association has so far been known in the vegetation of Croatia from two localities: Topolovac and Budaševo near Sisak and the Krapje dol Ornithological Reserve near Jasenovac. During phytosociological analysis of aquatic and marsh vegetation in Slavonija, a third locality was discovered in Babina Greda, where it covers the banks of the Berave stream.

Key words: *Acorus calamus*, *Glyceria maxima*, *Acoro-Glycerietum maximae*, Croatia

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As. *Acoro-Glycerietum maximae* bila je dosad u vegetaciji Hrvatske poznata iz dva područja: Topolovac i Budaševo kod Siska te Ornitološki rezervat »Krapje dol« kod Jasenovca. Tijekom fitocenološke analize vodenjarske i močvarne vegetacije u Slavoniji otkriveno je i njeno treće nalazište u Babinoj Gredi, gdje obrašćuje obale potoka Berave.

Ključne riječi: *Acorus calamus*, *Glyceria maxima*, *Acoro-Glycerietum maximae*, Hrvatska

INTRODUCTION

As already known, the *Acoro-Glycerietum maximae* association was described by SLAVNIĆ (1956) from Vojvodina, in the Pannonian region; it is an association composed of *Acorus calamus* and *Glyceria maxima*. In Central European phytosociological literature (cf. PHILIPPI, 1974), from the range of the *Phragmition* alliance the associations of the said species have been described separately, one as *Glycerietum maximae* Hueck and the other as *Acoretum calami* Schulz. Both these plant associations are also known in Croatia (TRINAJSTIĆ & ZI. PAVLETIĆ, 1991), but here the parallel combination of *Acorus calamus*–*Glyceria maxima* is also developed.

The syntaxonomic relations between the complexes »*Glycerietum maximae*«, »*Acoro-Glycerietum maximae*« and »*Acoretum calami*« have already been discussed (cf. TRINAJSTIĆ & ZI. PAVLETIĆ, 1991), so this issue will not be analysed in further detail.

THE ACORO-GLYCERIETUM MAXIMAE ASSOCIATION IN THE VEGETATION OF CROATIA

The *Acoro-Glycerietum maximae* association has so far been known in the vegetation of Croatia from two localities: Topolovac near Sisak (TRINAJSTIĆ & ŠUGAR, 1986) and the Krapje dol Ornithological Reserve near Jasenovac (TRINAJSTIĆ & ZI. PAVLETIĆ, 1991; cf. Fig. 1). During phytosociological analysis of aquatic and marsh vegetation in Slavonija, a third locality for it was discovered in Babina Greda, where it covers the banks of the Berave stream.

The floristic composition of the *Acoro-Glycerietum maximae* association from the locality in Babina Greda is shown in Tab. 1 and Fig. 1, which have been made on the basis of 4 phytosociological records.

Tab. 1. Ass. *Acoro-Glycerietum maximae* Slavnić 1956

No. of vegetation record	1	2	3	4
Locality:	Babina Greda			
Date:	16. 7. 1999.			
Size of vegetation record (m ²):	50	20	50	100
No. of species:	15	13	12	9
Characteristic of the Association				
<i>Acorus calamus</i> L.	4.4	2.3	2.3	4.4
Differential of the Association:				
<i>Glyceria maxima</i> (Hartman) Holmberg	+3	3.3	3.3	3.4
Char. Alliance <i>Phragmition</i> , Char. Order <i>Phragmitetalia</i> & Char. Class <i>Phragmitetea</i> :				
<i>Myosotis scorpioides</i> L.	3.3	1.2	1.3	2.3
<i>Lycopus europaeus</i> L.	2.3	2.3	1.3	2.3
<i>Mentha aquatica</i> L.	+	2.2	2.3	3.4
<i>Rumex hydrolapathum</i> Huds.	.	+	+	1.1
<i>Apium nodiflorum</i> (L.) Lag.	+3	.	.	.
Companions:				
<i>Polygonum</i> sp.	2.3	1.2	+	+
<i>Amorpha fruticosa</i> L.	+2	+2	+2	+
<i>Leonurus cardiaca</i> L.	+2	+	+2	.
<i>Althaea officinalis</i> L.	+	1.1	1.2	.
<i>Bidens tripartita</i> L.	+	+	1.1	.
<i>Lythrum salicaria</i> L.	+2	.	.	1.2
<i>Dipsacus fullonum</i> L.	+	.	+	.

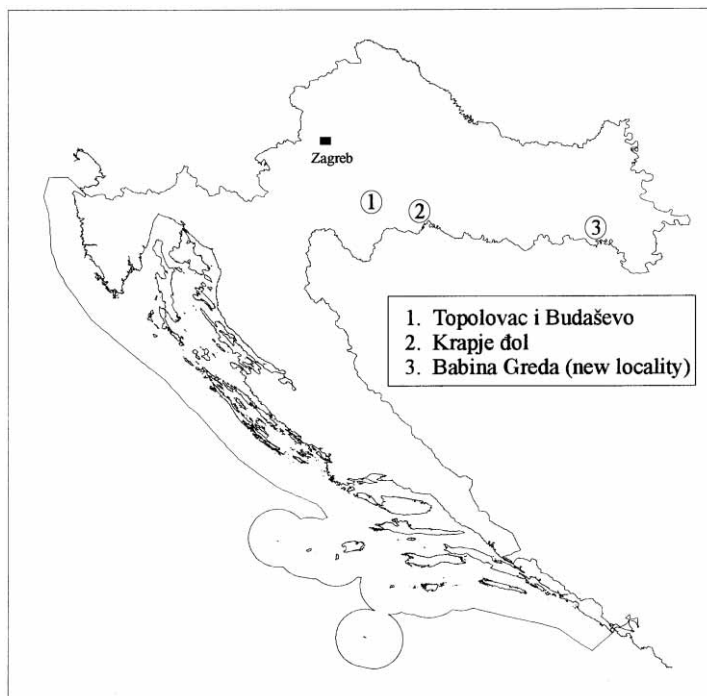


Fig. 1. Localities of the *Acoro-Glycerietum maximae* Slavnić 1956 association in Croatia

FLORISTIC COMPOSITION ANALYSIS

The total floristic composition of *Acoro-Glycerietum maximae* from Babina Greda, shown in Tab. 1 comprises 17 species, with 9 to 15 species on each record or 12.25 species per record on average. *Acorus calamus*, the characteristic species of the association is predominant, while *Glyceria maxima* is designated the differential species for the association. The characteristic species of higher syntaxa are represented by 5 species, among them, distinguished by their permanence, being *Myosotis scorpioides*, *Lycopus europaeus* and *Mentha aquatica*. The group of accompanying plants comprises 10 species, 5 of them with a higher permanence degree. In one phytosociological record only, as few as 3 species or approximately 17% of the total floristic composition are represented, which indicates the relative stability of the association in the Babina Greda locality.

In Tab. 2 the total floristic composition of the Ass. *Acoro-Glycerietum maximae* as determined from all of its 3 known localities in Croatia is shown. On the basis of a total of 13 phytosociological records, 45 species have been registered. The number of species in one record ranges between 5 and 17, or 12.28 species on average. *Acorus calamus* and *Glyceria maxima* are absolutely permanent, so the association can be determined by their presence, too.

Tab. 2. The *Acoro-Glycerietum maximae* Slavnić 1956 association

	TRINAJSTIĆ & ŠUGAR (1986)	TRINAJSTIĆ & PAVLETIĆ (1991)	Babina Greda	Σ
No. of vegetation records	5	4	4	13
No. of species:	24	26	17	45
Characteristic species of the association:				
<i>Acorus calamus</i>	5	4	4	13
Differential species of the association:				
<i>Glyceria maxima</i>	5	4	4	13
Char. Alliance <i>Phragmition</i> , Char. Order <i>Phragmitetalia</i> & Char. Class <i>Phragmitetea</i> :				
<i>Lycopus europaeus</i>	3	4	4	11
<i>Mentha aquatica</i>	4	2	4	10
<i>Rumex hydrolapathum</i>	3	2	3	8
<i>Myosotis scorpioides</i>	1	.	4	5
<i>Typha latifolia</i>	4	1	.	5
<i>Galium palustre</i>	3	2	.	5
<i>Carex gracilis</i>	2	3	.	5
<i>Sium erectum</i>	1	1	.	2
<i>Alisma plantago-aquatica</i>	4	.	.	4
<i>Schoenoplectus lacustris</i>	.	4	.	4
<i>Iris pseudoacorus</i>	.	4	.	4
<i>Lysimachia vulgaris</i>	.	3	.	3
<i>Phragmites australis</i>	3	.	.	3
<i>Roripa amphibia</i>	3	.	.	3
<i>Typha angustifolia</i>	.	2	.	2
<i>Equisetum palustre</i>	.	2	.	2
<i>Oenanthe aquatica</i>	1	.	.	1
<i>Butomus umbellatus</i>	1	.	.	1
<i>Polygonum amphibium</i>	1	.	.	1
<i>Carex vesicaria</i>	.	1	.	1
<i>Sparganium erectum</i>	.	1	.	1
<i>Equisetum fluviatile</i>	.	1	.	1
<i>Berula nodiflora</i>	.	.	1	1
Companions:				
<i>Lythrum salicaria</i>	1	4	2	7
<i>Calystegia sepium</i>	2	3	2	7
<i>Amorpha fruticosa</i>	.	2	4	6
<i>Salvinia natans</i>	2	1	.	3
<i>Scutellaria gelericulata</i>	1	.	1	2
<i>Polygonum</i> sp.	.	.	4	4
<i>Leonurus cardiaca</i>	.	.	3	3
<i>Althaea officinalis</i>	.	.	3	3
<i>Bidens tripartita</i>	.	.	3	3
<i>Bidens cernua</i>	2	.	.	2
<i>Dipsacus fullonum</i>	.	.	2	2

<i>Symphytum officinale</i>	.	2	.	2
<i>Nymphoides peltata</i>	1	.	.	1
<i>Ranunculus repens</i>	1	.	.	1
<i>Solanum dulcamara</i>	1	.	.	1
<i>Teucrium scordium</i>	.	1	.	1
<i>Galega officinalis</i>	.	1	.	1
<i>Stenactis annua</i>	.	1	.	1
<i>Cirsium arvense</i>	.	1	.	1
<i>Glycyrrhiza echinata</i>	.	.	1	1

The higher syntaxa (alliance, order, class) are represented by a total of 23 species, and in there are three species that are found in more than 50% of the records. The group of accompanying plants consists of 20 species, 8 of which (17.8% of the total number of species) have been registered in one record only.

The richest with species, 26 of them, is the Ass. *Acoro-Glycerietum maximae* from Krapje đol, and the poorest is that from Babina greda, with 17 species. In Topolovac, 24 species in all have been registered. The stands from Babina Greda have increased the total floristic composition by seven species.

DISCUSSION

Acorus calamus is known not to propagate with seed in Europe, but only vegetatively by means of rhizomes. For this reason, it spreads in limited water basins with great difficulty, so for its transfer from one water basin into another an important role is played by a man (cf. HEGI, 1909). *Acorus calamus* was formerly used much in the production of perfumes and as a medicinal herb (HEGI, 1909:136), so it was cultivated, but when its cultivation was abandoned it developed wherever favourable ecological conditions for its growth existed. Under optimal conditions it developed dense stands with just a few other elements, being then referred to as *Acoretum calamii*. In some habitats it is associated with the species *Glyceria maxima*, such as in the habitats along Sava, *i.e.* in the sub-Pannonian part of the Republic of Croatia.

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S A Ž E T A K

**Novo nalazište as. *Acoro-glycerietum maximae* Slavnić 1956
(*Phragmition*) u Hrvatskoj**

I. Trinajstić, J. Franjić & Ž. Škvorc

As. *Acoro-glycerietum maximae* bila je dosad u vegetaciji Hrvatske poznata s dva lokaliteta: Topolovac i Budaševo kod Siska i Ornitološki rezervat »Krapje dol« kod Jasenovca. Tijekom fitocenološke analize vodenjarske i močvarne vegetacije u Slavoniji otkriveno je i njeno treće nalazište u Babinoj Gredi, gdje obrašćuje obale potoka Berave.

Sveukupni florni sastav as. *Acoro-glycerietum maximae* iz Babine Grede, prikazan na Tab. 1 obuhvaća 17 vrsta, a pojedina snimka od 9 do 15 vrsta ili prosječno po snimci 12.25 vrsta. Kao karakteristična vrsta asocijacije ističe se *Acorus calamus*, dok je *Glyceria maxima* označena kao diferencijalna vrsta asocijacije. Karakteristične vrste viših sintaksona su zastupljene s pet vrsta, a među njima se svojom stalnošću ističu *Myosotis scorpioides*, *Lycopus europaeus* i *Mentha aquatica*. Skupina pratilaca obuhvaća 10 vrsta, a većim stupnjem stalnosti prisutno je pet vrsta. U samo jednoj fitocenološkoj snimci zastupljene su samo tri vrste ili oko 17% od sveukupnog flornog sastava, što sve ukazuje na relativnu stabilnost navedene zajednice na nalazištu u Babinoj Gredi.

Sveukupni dosad poznati florni sastav as. *Acoro-glycerietum maximae* iz sva tri njena poznata nalazišta prikazan je u Tab. 2. Na temelju ukupno 13 fitocenoloških snimaka registrirano je 45 vrsta. Broj vrsta u pojedinoj snimci kreće se između 5 i 17. ili prosječno 12.38 vrsta. *Acorus calamus* i *Glyceria maxima* potpuno su stalne, pa se i po njihovoj prisutnosti asocijacija može i determinirati.

Viši sintaksoni (sveza, red, razred) zastupljeni su s ukupno 23 vrste i u preko 50% snimaka zastupljeno je tri vrste. Skupina pratilaca obuhvaća 20 vrsta, a među njima osam vrsta (17.8% od ukupnog broja vrsta) zabilježeno je u samo jednoj snimci.

Najbogatija vrstama, njih 26 je as. *Acoro-glycerietum maximae* iz Krapje đola, a najsiromašnija iz Babine Grede sa 17 vrsta. U Topolovcu je zabilježeno ukupno 24 vrste. Sastojine iz Babine Grede povećale su sveukupni florni sastav za sedam vrsta.