

# SUAEDA VERA FORSK. EX J. F. GMELIN IN THE PLANT COVER OF CROATIA

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In this paper data on floristic and vegetational characteristics of the species *Suaeda vera* in the plant cover of Croatia are given. In that region *S. vera* is known in the wider area of Dubrovnik, as well as on the Islands of Vela and Mala Palagruža, Biševo, Brusnik, Kamik near Svetac and Vrgada. It was studied phytocoenologically and syntaxonomically on the Islands of Vela Palagruža and Vrgada where it builds the ass. *Suaedetum verae* floristically presented on the basis of 10 relevés (Tab. 1).

**Key words:** *Suaeda vera*, *Suaedetum verae*, vegetation of Croatia

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U radu se objavljuju podaci o florističkim i vegetacijskim značajkama vrste *Suaeda vera* u biljnom pokrovu Hrvatske. Na tom području *S. vera* je poznata iz širega područja Dubrovnika, te otoka Vele i Male Palagruže, Biševa, Brusnika, Kamika kraj Sveca i Vrgade Fitocenološko-sintaksonomski je proučavana na otocima V. Palagruži i Vrgadi, gdje izgrađuje as. *Suaedetum verae*, koja je floristički prikazana na temelju 10 fitocenoloških snimki (Tab. 1).

**Ključne riječi:** *Suaeda vera*, *Suaedetum verae*, vegetacija Hrvatske

## INTRODUCTION

Out of five shrubby species of the genus *Suaeda* Forskal ex Scop. in the European flora (cf. BALL, 1964; BALL & AKEROYD, 1993), the species *Suaeda vera* Forsk. ex J. F. Gmelin (= *S. fruticosa* auct.) occupies a wide range only in the Southern and Western Europe, gravitating to the Mediterranean (cf. JALAS & SUOMINEN, 1979; GREUTER *et al.*, 1984). With respect to the nomenclatural problems, in floristic and taxonomic literature there are two points (cf. BALL & AKEROYD, 1993; RIVAS-MARTINEZ *et al.*, 2001; 2002). By analogy, the plant community in the status of association is partly named as *Suaedetum fruticosae* (cf. BRAUN-BLANQUET *et al.*, 1952; BOLOS & R. MOLINIER, 1958), and partly as the ass. *Suaedetum verae* (cf. RIVAS-MARTINEZ *et al.*, 2001; 2002). Finally, points of view also differ with respect to the higher rank syntaxa the mentioned

association should be assigned to. Thus, BRAUN-BLANQUET (cf. BRAUN-BLANQUET *et al.*, 1952) assigns his ass. »*Suaedetum fruticosae* prov.« within the class Chenopodietea and the order Chenopodietalia to the alliance *Hordeion murini*, and BOLOS & R. MOLINIER (1958) assign it to the class *Salicornietea fruticosae*, while RIVAS-MARTINEZ *et al.* (2001, 2002) suggests a new name for the class *Sarcocornietea fruticosae* and for the order *Sarcocornietalia fruticosa* as well as the name *Suaedion verae* for the alliance.

## SUAEDA VERA FORSK. EX J. F. GMELIN IN THE CROATIAN FLORA

It seems that the species *Suaeda vera* in Croatia (Dalmatia), under the name of *S. fruticosa* Forsk, was first reported by VISIANI (1842: 243) who registered it for the area of Dubrovnik (»ad rupes maritimas circa Ragusa«). This information has been used lately by FUKAREK & E. MAYER in the edition of Atlas Florae Europaeae (cf. JALAS & SUOMINEN, 1979; 72, Map 571). HAYEK (1924: 156) registers the species *S. vera* as *S. fruticosa*, in the region of the Eastern Adriatic part of the Balkan Peninsula for Kvarner (Q) and Dalmatia (Da) only, and PIGNATTI (1982) registers it under the name of *S. fruticosa* for the Italian part of Istria near Trieste (»Istria fino a Trieste«, cf. Pignatti 1982(1): 175). Finally, SCHLOSSER & VUKOTINOVIĆ (1869: 965) register the species *S. vera* under the name of *Schoberia fruticosa* C. A. Mey, but for the region of Srijem, with the data of Visiani from Dalmatia.

So far, according to literature data (VISIANI, 1842; GINZBERGER, 1921), *S. vera* has been registered in the region of Croatian littoral in the following localities: Dubrovnik (VISIANI 1842; SCHLOSSER & VUKOTINOVIĆ, 1869; FUKAREK & E. MAYER, 1979), Vela and Mala Palagruža (BEGUINOT, 1910; GINZBERGER, 1921), Biševo (GINZBERGER, 1921; ZI. PAVLETIĆ, 1974), Brusnik, Kamnik near Svetac, Svetac (GINZBERGER, 1921) and Vrgada, which is a new locality of this species in Dalmatia (Trinajstić, n.p.).

## ASSOCIATION *SUAEDATUM VERAЕ* BR.-BL. (1952) 1958 IN THE VEGETATION OF CROATIA

It is interesting to note that phytocoenological-syntaxonomical features of the species *Suaeda vera* in the region of Croatian littoral have not been analyzed more closely until recently. Based on so far unpublished field research (TRINAJSTIĆ, n.p.), it was found out that in the region of Croatian littoral, in Dalmatia, *S. vera* also builds the *Suaedetum verae* association widely distributed in the Mediterranean. For this reason, the mentioned association has not been included in the monograph »Plant Communities of the Republic of Croatia« (cf. TRINAJSTIĆ, 2008). We take this opportunity to present here the phytocoenological-syntaxonomical features of the *Suaedetum verae* ass. from Croatia in the form of an analytical table.

The floristic composition of the ass. *Suaedetum verae* is shown on the basis of 10 plant-sociological relevés. Relevés 1–6 originate from the Island of Vela Palagruža and relevés 7–10 from the Island of Vrgada in the Šibenik archipelago.

**Tab. 1.** Ass. *Suaedetum verae* Br.-Bl. ex Bolos et R. Molinier 1958

Nr. of relevé:	1	2	3	4	5	6	7	8	9	10	Σ
Surface of relevé, m <sup>2</sup> :	20	20	10	10	10	20	6	10	10	10	/
Nr. of species pro relevé:	4	5	6	7	8	7	4	5	2	4	5,2
Ass., All.											
<i>Suaeda vera</i>	3.4	3.3	3.3	3.4	3.4	3.3	2.3	3.4	5.5	4.5	10
Order, Class:											
<i>Sarcocornia fruticosa</i>	.	.	.	.	.	.	3.4	.	.	.	1
<i>Halimione portulacoides</i>	.	.	.	.	.	.	.	.	.	.	1
	.	.	.	.	.	+3	.	.	.	.	
Companions:											
<i>Lotus angustissimus</i>	+2	2,3	1.2	1.3	+2	+2	.	.	.	.	6
<i>Allium commutatum</i>	1.1	2.2	2.1	.	1.3	+	.	.	.	.	5
<i>Reichardia picroides</i>	.	+2	+2	+2	1.2	.	.	.	.	.	4
<i>Crithmum maritimum</i>	.	+2	.	.	.	2.2	2.3	2.2	.	.	3
<i>Atriplex prostrata</i>	.	.	.	.	.	.	.	+2	.	+3	3
<i>Salsola kali</i>	.	.	1.3	+2	.	.	.	+2	+3	+3	3
<i>Euphorbia dendroides</i>	.	.	+2	+2	.	.	.	.	.	.	2
<i>Capparis spinosa</i>	.	.	.	+	.	.	.	.	.	.	2
<i>Hordeum leporinum</i>	.	.	.	.	+	.	.	.	.	.	2
<i>Limonium cancellatum</i>	.	.	.	.	.	.	.	3.4	.	.	1
<i>Plantago coronopus</i>	.	.	.	.	+3	.	+3	.	.	.	1
<i>Spergularia marina</i>	.	.	.	.	.	.	.	.	.	.	1
<i>Ecbalium ellaterium</i>	.	.	.	.	.	.	.	.	.	+3	1
<i>Aurinia leucadea</i>	.	.	.	.	+2	.	.	.	.	.	1
<i>Lavatera arborea</i>	.	.	.	.	+2	.	.	.	.	.	1
<i>Parapholis incurva</i>	+	.	.	.	.	+2	.	.	.	.	1
<i>Crucianella latifolia</i>	.	.	.	+	.	.	.	.	.	.	1
<i>Lophochloa cristata</i>	.	.	.	.	.	.	.	.	.	.	1
<i>Daucus gingidium</i>	.	.	.	.	.	+	.	.	.	.	1

Relevés 1-6 is. Vela Palagruža; relevés 7-10 is. Vrgada

## Syntaxonomy

Class *Sarcocornietea fruticosae* Br.-Bl. et R. Tx. ex A. et B. Bolòs 1950, corr.

Rivas – Martínez *et al.*, 2002

= *Salicornietea fruticosae* Br.-Bl. et R. Tx. ex A. et B. Bolòs 1950

Order *Sarcocornietalia fruticosae* Br.-Bl. 1933, corr. Rivas – Martínez *et al.*, 2002

= *Salicornietalia fruticosae* Br.-Bl. 1933

Aliance: *Suaedion verae* (Rivas-Martinez, Lousã, T. E. Diaz, Fernández-González et J. C. Costa 1990) Rivas-Martinez, Fernández-González et Loidi 1999

## FLORISTIC COMPOSITION ANALYSIS

The floristic composition of the *Suaedetum verae* ass. shown in Tab. 1 on the basis of 10 phytocenological relevés includes a total of 22 species. However, only *Suaeda fruticosa* is present in all 10 relevés, which is understandable since in the syntaxonomical analysis there are the very stands in which *S. vera* is present as the most important species of the association and the alliance *Suaedion verae*. Of the higher rank syntaxa, of the order *Sarcocornietalia fruticosae* and the class *Sarcocornietea fruticosae*, *Sarcocornia fruticosa* and *Halimione portulacoides* are barely present. All other species, 19 of them, belong to companion species, among which an important place is occupied by halophytes significant for other syntaxa within the halophytic vegetation. Just a small number of species present only in individual records belong to the nitrophilous elements.

## CONCLUSION

According to literature data *S. vera* in the region of Croatian littoral has been registered in Dubrovnik, Vela and Mala Palagruža, Biševo, Brusnik, Kamik near Svetac, Svetac and finally Vrgada, which is a new locality of this species in Dalmatia. *S. vera* in the region of Croatian littoral, in Dalmatia, also builds in the Mediterranean widely distributed *Suaedetum verae* association.

The floristic composition of the *Suaedetum verae* ass. is shown on the basis of 10 plantsociological relevés. Relevés 1–6 originate from the Island of Vela Palagruža and relevés 7–10 from the Island of Vrgada in the Šibenik archipelago. The floristic composition on the basis of 10 phytocenological relevés includes a total of 22 species. *S. vera* as the most important species of the association and the *Suaedion verae* alliance is present in all 10 relevés. Of the higher rank syntaxa, of the *Sarcocornietalia fruticosae* order and the *Sarcocornietea fruticosae* class, *Sarcocornia fruticosa* and *Halimione portulacoides* are barely present. All other species, 19 of them, belong to companion species.

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## S A Ž E T A K

### *Suaeda vera* Forsk. ex J. F. Gmelin u biljnom pokrovu Hrvatske

I. Trinajstić

Od pet grmastih vrsta roda *Suaeda* Forskal ex Scop. u europskoj flori (usp. BALL, 1964; BALL & AKEROYD, 1993), samo vrsta *Suaeda vera* Forsk. ex J. F. Gmelin (= *S. fruticosa* auct.) zauzima u južnoj i zapadnoj Europi široki areal, s težištem na Sredozemlju (usp. JALAS & SUOMINEN, 1979; GREUTER *et al.*, 1984). Za floru Hrvatske (Dalmacija), vrstu *Suaeda vera* pod imenom *S. fruticosa* Forsk. prvi je objavio VISIANI (1842: 243) koji ju je zabilježio za područje Dubrovnika (»ad rupes maritimas circa Ragusa«).

Dosada je prema literaturnim podacima (VISIANI, 1842; GINZBERGER, 1921) *S. vera* na području Hrvatskoga primorja zabilježena na sljedećim lokalitetima: Dubrovnik (VISIANI, 1842; SCHLOSSER & VUKOTINOVIĆ, 1869; FUKAREK & E. MAYER, 1979), Vela i Mala Palagruža (BEGUINOT, 1910; GINZBERGER, 1921), Biševo (GINZBERGER, 1921; ZL. PAVLETIĆ, 1974), Brusnik, Kamik kraj Sveca, Svetac (GINZBERGER, 1921), te Vrgada, što je novo nalazište te vrste u Dalmaciji (Trinajstić, n.p.)

Na temelju dosada neobjavljenih terenskih istraživanja (Trinajstić, n.p.) ustanovljeno je da *S. vera* i na području Hrvatskog primorja, u Dalmaciji, izgrađuje u Sredozemlju široko rasprostranjenu asocijaciju *Suaedetum verae*.

U florističkom sastavu as. *Suaedetum verae* koji je prikazan u Tab. 1 na temelju 10 fitocenoloških snimaka obuhvaćene su sveukupno 22 vrste. Jedino je *Suaeda fruticosa* zastupljena u svih 10 snimaka, jer su u sintaksonomsku analizu uvrštene upravo one sastojine u kojima je zastupljena *S. vera* kao najvažnija vrsta asocijacije i sveze *Suaedion verae*. Od sintaksona višega ranga, reda *Sarcocornietalia fruticosae* i razreda *Sarcocornietea fruticosae*, jedva da su nazočne *Sarcocornia fruticosa* i *Halimione portulacoides*. Sve ostalo, 19 vrsta, pripada pratilicama, među kojima značajno mjesto zauzimaju halofiti značajni za druge sintaksone u sklopu halofitske vegetacije. Tek maleni broj vrsta koje su zastupljene u samo pojedinim snimkama pripadaju nitrofilnim elementima.