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A new association and a new vegetal community for continental Portugal

Abstract

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A new association, *Trisetarietum hispidae*, belonging to the class of perennial pratense herbaceous vegetation *Stipo giganteae-Agrostietea castellanæ*, dominated by Iberian endemic grass *Trisetaria hispida* (Gramineae), from the Eastern Beira-Duriense mountains (province of Beira Alta) is described here for the first time. A vegetal community dominated by the exotic species *Watsonia meriana* (Iridaceae), from the coastal region of SW Portugal (provinces of Algarve and Baixo Alentejo) is also described.

Key words: Grasses, Portugal, vegetation.

Introduction

A new association and a new vegetal community are described here for the first time for continental Portugal. These two communities are not cited in the reference works about the vegetation of Portugal (Rivas-Martínez & al. 2001, 2002a, 2002b; Costa & al. 2012).

I. *Trisetarietum hispidae*, a new association of hemicryptophitic grassland from the Beira-Duriense mountains (Portugal, Beira Alta)

A new association, *Trisetarietum hispidae*, belonging to the class of perennial pratense herbaceous vegetation *Stipo giganteae-Agrostietea castellanæ*, from the Eastern Beira-Duriense mountains, discovered during the field work for the author's PhD thesis (Almeida 2009: 698) as *Trisetarietum hispidae* inéd., is described here for the first time:

Trisetarietum hispidae J. D. Almeida, assoc. nova hoc loco (Table 1, *holotypus assoc. relevé 2*) (*Agrostio castellanæ-Stipion giganteae, Agrostietalia castellanæ, Stipo giganteae-Agrostietea castellanæ*)

Hemicryptophitic grassland characterized by the large Iberian endemic perennial grass *Trisetaria hispida* (Lange) Paunero [= *Trisetum hispidum* Lange] –the most abundant species in this association–, the Iberian endemic species *Centaurea herminii* subsp. *lusitana* (Arènes) Franco, *Conopodium majus* subsp. *marizianum* (Samp.) López Udias & G. Mateo, *Digitalis thapsi* L. and *Quercus pyrenaica* Willd. (as a shrub), the common species *Andryala integrifolia* L., *Hypochaeris radicata* L., *Jasione montana* L. and *Senecio sylvaticus* L.; and without the very common high perennial grass *Celtica gigantea* (Link) F. M. Vázquez & E. M. Barkworth [= *Stipa gigantea* Link], Iberian endemic *Armeria beirana* Franco or the strict endemism from the neighbour mountain Serra da Estrela *Centaurea rothmaleriana* (Arènes) Dostál.

It occurs in mesomediterranean to supramediterranean subhumid to humid, on cambisols derived from granites, in the Eastern Beira-Duriense mountains (Penedono, Sernancelhe, Trancoso, Meda).

Its a subseral association of *Holco mollis*-*Quercetum pyrenaicae* oakwoods.

Table 1. *Trisetarietum hispidae* J. D. Almeida, assoc. nova hoc loco (holotypus assoc. relevé 2).

Ordinal number of relevé	1	2	3
Altitude (m above sea level)	780	870	750
Rock	granite	granite	granite
Surface (m ²)	20	24	20
Number of species	18	24	20
Characteristic species			
<i>Trisetaria hispida</i>	4	5	3
<i>Andryala integrifolia</i>	1	1	+
<i>Conopodium majus</i> subsp. <i>marizianum</i>	1	+	+
<i>Digitalis thapsi</i>	2	1	1
<i>Hypochaeris radicata</i>	1	+	+
<i>Jasione montana</i>	2	1	+
<i>Quercus pyrenaica</i> (<i>frutex</i>)	2	1	+
<i>Senecio sylvaticus</i>	+	1	+
Companion species			
<i>Agrostis</i> × <i>fouilladei</i>		1	+
<i>Anarrhinum bellidifolium</i>		1	+
<i>Arrhenatherum elatius</i> subsp. <i>baeticum</i>		1	+
<i>Centaurea herminii</i> subsp. <i>lusitana</i>	+	1	
<i>Cytisus multiflorus</i>	2	2	1
<i>Cytisus striatus</i>	2		1
<i>Hypericum linariifolium</i>		+	+
<i>Micropyrum tenellum</i>	1	1	
<i>Neoschischkinia truncatula</i> subsp. <i>duriei</i>	+	2	
<i>Rumex angiocarpus</i>	2	1	
<i>Spergula morisonii</i>	+		+
<i>Umbilicus rupestris</i>		+	+

Other companion species: relevé n° 1: 1 *Briza maxima*, 1 *Cistus psilosepalus*, + *Raphanus microcarpus*; **relevé n° 2:** + *Anthemis arvensis*, + *Bromus diandrus*, 1 *Campanula lusitanica*, + *Centranthus calcitrapae*, 1 *Corynephorus canescens*, + *Echium lusitanicum*, + *Lupinus gredensis*, + *Tolpis barbata*; **relevé n° 3:** 1 *Avenula lodunensis*, 1 *Dianthus lusitanus*, + *Linaria saxatilis*, 2 *Pteridium aquilinum*.

Localities: relevé n° 1: BA: Trancoso: near Sebadelhe, granitic place, 780 m, UTM: 29TNF345247, 14.VI.2007; **relevé n° 2** (*holotypus assoc.*): BA: Sernancelhe: near Arnas, granitic place, 870 m, UTM: 29TPF365278, 19.VI.2001; **relevé n° 3:** BA: Meda: Chãos, granitic place, 750 m, UTM: 29TPF410293, 2.VII.2008.

II. *Watsonia meriana* (L.) Mill. communities in Baixo Alentejo and Algarve (Portugal)

This South-African Iridaceae can be classified as a ruderal and arvense epiphyte in Portugal (Almeida 1999: 101), according to the classification of synanthropic species established by Kornas (1990). It forms extended and compact populations at the Capense Region, where it is native.

Introduced as an ornamental plant for its beautiful flowers, *Watsonia meriana* is known in Portugal as a subsontaneous plant for more than a hundred years, since the beginning of the XX century, when it was found in the margins of a creek in the county of Odemira (Pinto da Silva & Rainha, 1956: 22; Almeida 1999: 101).

Watsonia meriana is a perfectly naturalized species in Southern Portugal, having vegetative reproduction and also producing viable seeds, and it forms dense populations on cultivated or wasted lowlands, rich in clay, with the presence of water, where the freatic level allows its growth (Ramos Lopes & Pinto da Silva 1980: 8; Franco, 1994: 139).

Flowering period: from March to July (III-VII).

Distribution: Minho Baixo Alentejo and Algarve, between 50 and 200 m (Ramos Lopes & Pinto da Silva 1980: 10; Buira & Calvo, 2013: 478).

Having visited the provinces of Baixo Alentejo and Algarve, where *Watsonia meriana* is subsontaneous (counties of Odemira e Aljezur), we compiled six phytosociological relevés: four in the Algarve (districto of Faro, county of Aljezur, parishes of Aljezur and Odeceixe) and two in the Baixo Alentejo (districto of Beja, county of Odemira, parish of São Teotónio). These relevés, from 2001, 1 and 2 of May, are resumed at Table 1.

It's a plant community dominated by the exotic herbaceous capense species *Watsonia meriana*, an “watsonial”, which can cover quite large areas, forming dense populations densas in low lands with a fair amount of water, as Ramos Lopes & Pinto da Silva (1980: 8) already had noted.

Table 2. *Watsonia meriana* community.

Relevé n°	1	2	3	4	5	6
Altitude (m)	80	100	100	80	150	150
Surface covered (%)	100	80	80	80	90	80
Area (m ²)	900	10	20	20	20	10
Geological substract	aluvion	aluvion	aluvion	aluvion	aluvion	aluvion
Declive (%)	-	-	-	-	-	-
Characteristic species						
<i>Watsonia meriana</i>	4	4	5	4	5	4
<i>Rubus ulmifolius</i>	1	3	2	2	1	1
<i>Andryala integrifolia</i>	1	1	+	+	+	+
Companion species						
<i>Dittrichia viscosa</i> subsp. <i>revoluta</i>	2	2	.	1	.	1
<i>Briza maxima</i>	1	+	.	.	2	1
<i>Briza minor</i>	+	.	.	.	1	.
<i>Galactites tomentosa</i>	+	.	.	.	+	1
<i>Avena</i> sp.	.	1	.	.	2	+
<i>Cistus salvifolius</i>	+	.	3	.	.	.
<i>Vicia benghalensis</i>	+	.	.	.	1	.
<i>Vicia lutea</i>	+	.	.	.	.	+
<i>Vicia sativa</i>	+	.	.	.	+	.
<i>Oxalis pes-caprae</i>	+	+	.	.	.	.
<i>Linum bienne</i>	+	.	.	.	+	.
<i>Tolpis barbata</i>	+	.	.	.	+	.
<i>Trifolium angustifolium</i>	+	.	.	.	+	.
<i>Dipsacus comosus</i>	2	.	.	.	.	.
<i>Pistacia lentiscus</i>	1	.	.	.	.	.
<i>Phlomis purpurea</i>	1	.	.	.	.	.
<i>Scolymus hispanicus</i>	1	.	.	.	.	.

Other companion species: relevé n° 1: *Ranunculus* sp., *Cerastium* sp. +, *Rumex* sp. +, *Cistus ladanifer* 1, *Tuberaria* sp. +, *Tamarix* sp., *Genista hirsuta* 1, *Medicago murex* +, *Trifolium campestre* +, *Euphorbia* sp. +, *Geranium dissectum* +, *Olea europaea* +, *Daucus* sp. +, *Oenanthe crocata* +, *Galium* sp. +, *Stachys arvensis* +, *Bellardia trixago* +, *Scabiosa atropurpurea* +, *Centranthus calcitrapae* +, *Centaurea* sp. +, *Crepis* sp. +, *Leontodon* sp. +, *Juncus acutus* +, *Bromus* sp. +, *Dactylis glomerata* +, *Carex divulsa* 1, *Serapias* sp. +; **relevé n° 2:** *Pelargonium* sp. 2; **relevé n° 5:** *Silene gallica* 1, *Rumex bucephalophorus* 1, *Daphne gnidium* +, *Parentucellia viscosa* +, *Plantago lanceolata* +, *Conyza* sp. +, *Coleostephus myconis* 1, *Urospermum picroides* +, *Bromus hordeaceus* +.

Localities: relevé n° 1: Aljezur, Picão, near the road from Arrifana and Vales, 29SNB132272; **relevé n° 2:** Aljezur, Maria Vinagre, margin of the road, near the village, 29SNB1939; **relevé n° 3:** Aljezur, Maria Vinagre, margin of the road, close to the village, 29SNB201400; **relevé n° 4:** Aljezur, Odeceixe, near the road between Odeceixe and Odeceixe Beach, 29SNB189424; **relevé n° 5:** Odemira, S. Teotónio, near the road, 29SNB236481; **relevé n° 6:** Odemira, S. Teotónio, by the road, near the village, 29SNB252536.

The presence of *Genista hirsuta* and *Cistus ladanifer* (relevé n° 1) may possibly indicate a presence of the association *Genista hirsutae-Cistetum ladaniferi*, at the fringe of the *Watsonia meriana* community.

It is worth to note the presence of *Medicago murex* Willd. in Picão, Aljezur, Algarve (relevé n° 1), a rare species in Portugal.



Fig. 1. *Trisetarietum hispidae*, Beira Alta, near Trancoso, June 2007.



Fig. 2. *Watsonia meriana* community in Algarve, near Aljezur, May 2003.

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