

Geographic variation among Iberian communities of the exotic halophyte *Cotula coronopifolia*

José Carlos Costa · Carlos Neto ·
Pedro Arsénio · Jorge Capelo

Received: 11 July 2008 / Accepted: 18 June 2009 / Published online: 24 July 2009
© Birkhäuser Verlag, Basel/Switzerland 2009

Abstract The exotic annual forb *Cotula coronopifolia* has locally invaded salt marsh communities naturally dominated by *Spergularia marina* along large parts of the Iberian coastline. While the floristic composition of *C. coronopifolia* dominated communities on the Atlantic coast of northern Portugal has already been described, this information was missing for the southern part of the country. We carried out a phytosociological study at 21 sites along the south-western and southern coast of mainland Portugal to determine the ecology and syntaxonomical status of these communities, and to compare them to the Atlantic ones. Plant communities co-dominated by *C. coronopifolia* and *S. marina* were generally found in the

sub-halophilous inner part of salt marshes. They occupied gaps within taller perennial vegetation (*Juncus maritimus* formations), such as small pools temporarily inundated with brackish waters. Southern communities differed from the northern ones by the high abundance of *Triglochin barrelieri* and the absence of salt-intolerant species that are present in the Atlantic communities. This difference may result from the drier summer climate in southern regions, leading to intense water evaporation and thus, more saline conditions. We propose to classify the Mediterranean communities in a new association, the *Cotulo coronopifoliae-Triglochinetum barrelieri*. High abundance of *Limonium diffusum* further allowed the distinction of a new subassociation *limonietosum diffusi* for the southernmost part of Portugal. Results show that invasive exotic plants can form new phytosociological associations with a characteristic species composition, but that these community types, despite being dominated by the same invader, still show ecological and geographical differentiation.

Responsible Editor: Sabine Güsewell.

J. C. Costa (✉)
Departamento de Protecção de Plantas e de Fitoecologia,
Instituto Superior de Agronomia,
Technical University of Lisbon (TULisbon),
Tapada da Ajuda, 1349-017 Lisbon, Portugal
e-mail: jccosta@isa.utl.pt

C. Neto
Departamento de Geografia, Faculdade de Letras de Lisboa,
Alameda da Universidade, 1600-214 Lisbon, Portugal
e-mail: carlosneto@fl.ul.pt

P. Arsénio
Secção Autónoma de Arquitectura Paisagista,
Instituto Superior de Agronomia,
Technical University of Lisbon (TULisbon),
Tapada da Ajuda, 1349-017 Lisbon, Portugal
e-mail: arseniop@isa.utl.pt

J. Capelo
Instituto Nacional de Recursos Biológicos, I. P.,
Quinta do Marquês, 2780-159 Oeiras, Portugal
e-mail: jorge.capelo@gmail.com

Keywords Iberian Peninsula · Phytosociology ·
Pioneer vegetation · Salt marshes · Syntaxonomy