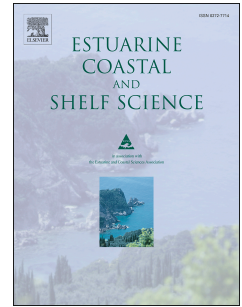


Accepted Manuscript

Linking plant communities on land and at sea: The effects of *Posidonia oceanica* wrack on the structure of dune vegetation

Silvia Del Vecchio, Tommaso Jucker, Marta Carboni, Alicia T.R. Acosta



PII: S0272-7714(16)30551-0

DOI: [10.1016/j.ecss.2016.10.041](https://doi.org/10.1016/j.ecss.2016.10.041)

Reference: YECSS 5300

To appear in: *Estuarine, Coastal and Shelf Science*

Received Date: 8 March 2016

Revised Date: 17 October 2016

Accepted Date: 31 October 2016

Please cite this article as: Del Vecchio, S., Jucker, T., Carboni, M., Acosta, A.T.R., Linking plant communities on land and at sea: The effects of *Posidonia oceanica* wrack on the structure of dune vegetation, *Estuarine, Coastal and Shelf Science* (2016), doi: 10.1016/j.ecss.2016.10.041.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Linking plant communities on land and at sea: the effects of *Posidonia oceanica* wrack on the structure of dune vegetation

Silvia Del Vecchio^{a*,d}, Tommaso Jucker^{b,d}, Marta Carboni^{c,d}, Alicia T.R. Acosta^d

^aCentre for Estuarine and Marine Studies, DAIS, Università Ca' Foscari Venezia, Castello 2737b, 30122 Venezia, Italy.

^bForest Ecology and Conservation group, Department of Plant Sciences, University of Cambridge, Downing Street, Cambridge, CB2 3EA, UK.

^cLaboratoire d'Ecologie Alpine, UMR-CNRS 5553, Université J. Fourier, BP 53, 38041 Grenoble Cedex 9, France.

^dDipartimento di Scienze, Università degli Studi Roma Tre, V.le Marconi 446 – 00146 Roma, Italy.

*Corresponding authors: silvia.delvecchio@unive.it; +39 041 2347741.

Abstract

Although terrestrial and marine ecosystems are often perceived as clearly distinct, in coastal areas biological communities on land and at sea are in fact intimately linked. One way in which terrestrial and marine systems interact is through the accumulation of seagrass wrack on beaches, which plays an important role as a nutrient input in coastal dune food webs. Here we test whether accumulated beach-cast wrack also influences the structure and diversity of coastal dune plant communities. Relying on a database of 572 vegetation surveys distributed across the island of Sardinia, we used mixed-effects models to compare the vegetation cover and species richness of plant communities exposed to different amounts of *Posidonia oceanica* beach-cast wrack. We found that beaches which receive high amounts of *P. oceanica* wrack have considerably greater vegetation cover (10% on average) than those with fewer deposits. The positive relationship between beach-cast wrack and vegetation cover was especially strong in nearshore plant communities, becoming progressively weaker along the habitat zonation. A similar pattern was found for species richness: beaches with high levels of accumulated wrack had more diverse drift line and foredune plant communities, while habitats further away from the shoreline were unaffected. Our study is the first to present evidence suggesting that activities which reduce wrack accumulation on beaches – either through direct removal of deposits or by causing *P. oceanica* seabeds to decline – can have effects on both the structure and diversity of coastal dune plant communities. Effective management of Mediterranean coastal dune ecosystems will require developing clear strategies for the removal and relocation of accumulated beach-cast wrack.

Download English Version:

<https://daneshyari.com/en/article/6384375>

Download Persian Version:

<https://daneshyari.com/article/6384375>

[Daneshyari.com](https://daneshyari.com)