Comparison of Biomass and Nutrient Dynamics Between an Invasive and a Native Species in a Mediterranean Saltmarsh.

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Abstract: Two saltmarsh species, the native *Arthrocnemum macrostachyum* (AM) and the invasive *Spartina densiflora* (SD), were compared in terms of monthly variation of above and belowground biomass, and nutrient (N, P, K, Ca, Mg, Mn) concentrations, over 1 year, in Castro Marim saltmarsh, Portugal. Net aboveground primary productivity was also estimated by two different methods. Above and belowground biomass were higher in SD than in AM and there were distinct monthly variations in the two species. Maximum relative growth rate was observed in the October/January period for SD (4.92±0.36 mg g-1 day-1) and in April/July for AM (3.37±1.26 mg g-1 day-1). Whatever the method used, net aboveground primary productivity was higher in SD (2,603 and 2,923 g m-2 yr-1, respectively by the Smalley and the Wiegert and Evans method) than in AM (692 and 1,012 g m-2 yr-1, respectively). The turnover rate for aboveground live biomass of AM was half the value of SD (0.8 yr-1 and 1.7 yr-1, respectively). The N/P ratio in photosynthetic active components and belowground biomass of AM (11 and 13) was higher than in those of SD (7 and 10). Concentrations of K, Ca and Mg in photosynthetic tissues of SD were lower than in AM. Differences observed between study species suggest that *S. densiflora* has better ability to use resources and to compete with native species.