

GETTING REPRODUCTIVE ASSURANCE: THE MULTIPLE STRATEGY OF RUMEX BUCEPHALOPHORUS L. (POLYGONACEAE) IN RESPONSE TO CHANGING ENVIRONMENT

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Abstract

Unpredictable environments confront plants with the challenging task of reproducing and surviving under variable conditions. Amphicarpic is a multiple strategy that represents a form of bet-hedging in the face of temporal variation in environmental suitability. *Rumex bucephalophorus* is an amphicarpic annual pioneer from the Mediterranean Basin that lives in habitats differing in stability. *R. bucephalophorus* can produce buried diaspores (BD) that develop early in the season assuring reproduction and aerial diaspores (AD) for long range dispersal; the amphicarpic ratio (AD/BD) being highly variable among populations. Theory predicts a decrease of the AD/BD ratio under unfavorable conditions or in unstable habitats to assure reproduction. To test the hypothesis that plasticity in the amphicarpic ratio exists as a function of environmental conditions we studied the effect of soil nutrient availability and habitat stability on the production of both kinds of diaspores. We have carried out a survey of populations in different habitats from west Mediterranean Basin recording diaspore types. Moreover, in some of these populations soil was analyzed and the amphicarpic ratio was calculated in 8-12 plants. Soil composition scarcely varied among populations, so that a clear relationship between amphicarpic ratio and soil nutrient availability was not found. In contrast, amphicarpic ratio was markedly affected by the habitat in which the plants develop. The lowest amphicarpic ratio was found in the most stable habitats and so the patterns found are not consistent with theoretical predictions.

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