



Water storage capacity, stemflow and water funneling in Mediterranean shrubs: biotic and abiotic factors

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Many lands of the Mediterranean basin of European Union have been abandoned in the last decades and consequently vegetation type changes too. This modifies hydrologic processes, changing the volume and the way in which the rainfall reaches the soil. To predict water losses and other hydrological and ecological features of vegetation, its water storage capacity and stemflow need to be accurately determined. Vast areas of the Mediterranean region are occupied by shrublands yet there is scarce data available on their rainwater interception capacity. Only 11% of publications have addressed this issue in shrubs. A technique for measuring in countryside interception loss, throughfall and stemflow in shrubs is reported. It allows expressing the results in relation to rainfall characteristics and environmental conditions for low intensity events. Simulated rainfall tests were also conducted in controlled conditions on 9 Mediterranean shrubs in order to assess the influence of varying anatomic and morphological features. Mean water storage capacity was 1.02 mm (0.35 mm to 3.24 mm), stemflow was 16% (3.8 % to 26.4%) and the funneling ratio was 104 (30 to 260). Despite their small size, shrubs may generate high water losses when they form dense communities and this can have a significant impact in regions where water is scarce. In this report, we discuss the ecological and hydrological significance of stemflow and the funneling ratio.