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Regular research paper

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## EFFECTS OF MOWING REGIME ON DIVERSITY OF MEDITERRANEAN ROADSIDE VEGETATION – IMPLICATIONS FOR MANAGEMENT

**ABSTRACT:** Shrub development on road outside verges can provide alternative wildlife habitat. However, management of inside verges should keep vegetation at a height consistent with proper road visibility and safety. The influence of management on vegetation was analyzed on the inside verge of two Portuguese roads, one mown once and another twice a year. Specifically, the effect of mowing frequency on shrub abundance and the combined effect of management and shrubs on floristic diversity were addressed. One stretch of each road was surveyed for shrub abundance and for herbaceous species diversity and cover. The effect of mowing frequency on shrub growing and biomass production and allocation was also evaluated along two years. Results indicate that vegetation mowing yearly in spring is enough to keep the inside verge free from most shrubs. However, summer growing shrubs like *Dittrichia viscosa* can persist, decreasing both floristic diversity and cover, particularly of meadow species. Moreover, in response to spring mowing, shrubs grew fast and were able to disperse efficiently. An additional autumn mowing significantly decreased not only shrub height and canopy area, but specially seed production and dispersal. Thus, the inside verge management should be based on two mowing periods. The first in spring to control winter and spring growing species, and an additional autumn mowing to control growth and dispersal of summer growing shrubs and trees, or even tall grasses. This management regime will

combine safety with improvement of the amenity and habitat value of the road verges.

**KEY WORDS:** biodiversity, biomass production, *Dittrichia viscosa*, Mediterranean region, road verge, shrubs

### 1. INTRODUCTION

Roads are artificial structures that have become a prominent landscape feature (Forman and Alexander 1998), and are known to have both negative and positive impacts on species, habitats and landscapes (Karim and Mallik 2008). By traversing areas of suitable wildlife habitat, roads can have a significantly negative impact on the environment being hence among the most relevant structures involved in the fragmentation of (semi-) natural habitats (Santos *et al.* 2007). On the other hand, though roadside verges cannot provide a substitute for properly managed nature reserves, their potential contribution to the conservation of biodiversity in fragmented landscapes has long been recognized (Forman and Alexander 1998, Jantunen *et al.* 2006, Santos *et al.* 2007, Akbar *et al.* 2010). In the Mediterranean region, where the destruction and fragmentation of traditional semi-natural grasslands and decline of natural plant