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Biogeosciences Discussions

Interactive comment on "The strength of the biotic compartment to retain nitrogen additions prevents nitrogen losses from a Mediterranean maquis" *by* T. Dias et al.

T. Dias et al.

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Dear Prof Janet Sprent

We thank the anonymous referee number 3 for his/her comments on our manuscript "The strength of the biotic compartment in retaining nitrogen additions prevents nitrogen losses from a Mediterranean maquis" that we submitted for publication in "Biogeosciences, Special Issue: Nitrogen and global change". Please find below the list of answers to the comments and suggestions.

Comment: Page 8043. Line 23. Please define "Mediterranean maquis" Answer: A Mediterranean maquis is a type of Mediterranean habitat that comprises closed vege-

tation, usually with 100% cover, mainly shrubs with few annuals and some geophytes, trees are nearly always present, some of which may be in shrub form). This definition was introduced in the text.

Comment: Page 8044. Line 21. Please name the family that C. ladanifer belongs to (Cistaceae), and the other species that are mentioned on this page. Answer: Accepted and introduced accordingly.

Comment: Interesting to note that 2 of the most dominant spp. are legumes (Genista triacanthos, Ulex densus). Did the authors note if they were nodulated, and hence may be making a significant contribution to the soil N via biological nitrogen fixation (BNF)? The same might also be said of the annual plants, as I would imagine that several of them are also legumes (I see from your paper in Plant and Soil, Dias et al. 2011, that Lotus, Trifolium and Vicia spp., were all present). BNF by legumes has long been known to decline if soil N increases, so it could be argued that the addition of the ammonium/nitrate may have been partly offset by a consequent reduction in the contribution to soil N made by any nodulated legumes that were present in the plots. Of course, this contribution may not be significant, but nevertheless is still worthy of a comment. Answer: We welcome the referee's suggestion and although we still have not looked at nodulation or BNF, we have already sampled tissues from legume species for analysis of total N concentration and ∂15N signature from the four treatments.

Comment: Page 8050. Lines 9-10. Please correct: "caused a decreased of the C. ladanifer" Answer: Accepted and changed accordingly.

Comment: Page 8050. Line 15. "The C/N ratio of C. ladanifer" Answer: Accepted and changed accordingly.

Comment: Page 8051. Line 13. Do you mean "and so low..."? It would make more sense. Answer: Although the values of soil organic matter are within the range found in other Mediterranean soils, in comparison with soils from temperate systems they are very low. That is why we wrote "but".

BGD

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Comment: Page 8054. Line 4. “respectivee” Answer: Accepted and changed accordingly.

Yours faithfully,

Teresa Dias

Interactive comment on Biogeosciences Discuss., 8, 8041, 2011.