

Research Article

Disentangling grazing effects: trampling, defoliation and urine deposition

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First published: 11 August 2016

<https://doi.org/10.1111/avsc.12250>

Cited by: [5](#)



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[Volume 19, Issue 4](#)

October 2016

Pages 557-566

Abstract

Questions

Do the effects of grazing components on vegetation structure differ in their relative importance? Do components interact in their effect on vegetation?

Location

San Jose department, Southern Campos, Uruguay.

Methods

In a manipulative field experiment we simulated three different grazing components: trampling, defoliation and urine deposition, over 3 yr in a natural grassland. Defoliation was analysed through two intensity levels and two procedures: uniform and selective cutting. We evaluated the effects of grazing components on species diversity and composition, and frequency of plant functional types.

Results

All simulated grazing components had at least some effect on vegetation structure. Additionally, both individual and interactive effects on vegetation attributes were detected. Our study indicates that the relative influence of each grazing component varied according to the attribute considered. N addition was the only treatment that affected plant diversity. Plant functional type composition, in turn, was affected mainly by trampling. N addition and trampling were the component that affected the frequency of the largest number of species. Defoliation selectivity showed effects both in terms of plant functional type and species composition. Exclosure treatment and defoliation intensity had slight effects on grassland structure.

Conclusions

This study provides insight on the underlying mechanisms of some observed patterns of grazing on the Campos grasslands. Our results lead us to conclude that all grazing components have to be taken into account to understand vegetation dynamics subjected to grazing. Prevention of woody encroachment by grazing can be attributed to direct and indirect effects of trampling. Trampling should be taken into account to explain increaser species responses. However, mechanisms responsible for other general patterns remain less clear. The importance of selective defoliation in species replacement induced by grazing in these grasslands has yet to be clarified.

[Citing Literature](#)

Supporting Information