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The XXI International Grassland Congress / VIII International Rangeland Congress took place in Hohhot, China from June 29 through July 5, 2008.

Proceedings edited by Organizing Committee of 2008 IGC/IRC Conference

Published by Guangdong People's Publishing House

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Short-term response of preferred and unpreferred species to sheep grazing in a Patagonian steppe

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Key words: Sheep grazing, cover, preferred, species, unpreferred, species

Introduction Patagonian steppes are subjected to severe grazing-induced desertification processes (León & Aguiar 1985), usually leading to the dominance of unpreferred plant species at the expense of preferred ones (Cingolani *et al.* 2005). It is commonly accepted that grazing constitutes a selective pressure favourable to unpreferred plants, more stress tolerant than preferred ones (Chapin *et al.* 1987). However, this hypothesis was rarely based on short-term field measurements under known grazing pressures. Here we tested general hypothesis in the Patagonian steppe by measuring the change in plant cover of preferred and unpreferred species along a growth season under known grazing pressures.

Materials and methods The experiment was done from October 2005 to February 2006 in the Experimental Farm of INTA at Río Mayo (Chubut province, Argentina). We measured specific plant cover by the lineal interception method on permanent transects located at 3 plots of 100-150 ha subjected to different stocking rates. Within each plot, 3 transects were located at different distances from the watering point in order to encompass a wider gradient of grazing pressures. On each transect we counted faecal pellets and transformed the mean stocking rate of each plot to the stocking rate of each transect (effective stocking rate; ESR), proportionally to the number of faecal pellets. We analyzed the effect of grazing on the cover of preferred and unpreferred plant functional types (PFT), and of preferred *Poa ligularis* (PLIG) and unpreferred *Stipa speciosa* var. *major* (SSM), by multiple linear regressions, with time under grazing and effective stocking rate as independent variables.

Results According to the hypothesis the cover of the Preferred PFT and that of PLIG-decreased significantly with time under grazing, while that of Unpreferred PFT and that of SSM-did not vary with time under grazing. In addition, the cover of PLIG decreased as effective stocking rate increased (Figure 1).

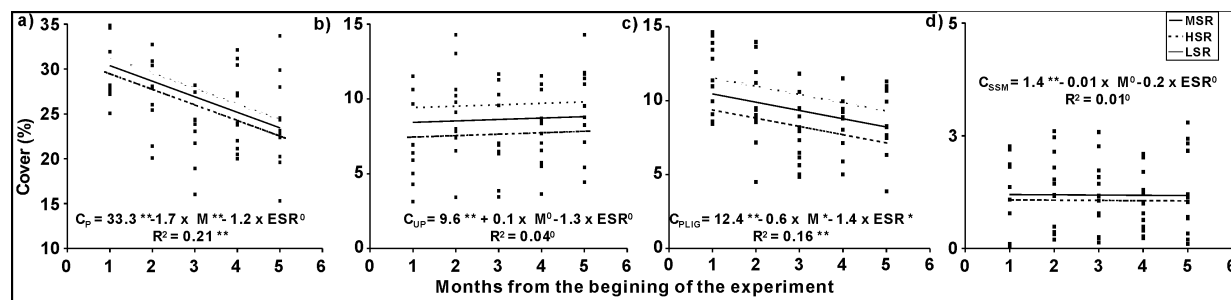


Figure 1 Plant cover of Preferred PFT (a), Unpreferred PFT (b), preferred *Poa ligularis* (c) and unpreferred *Stipa speciosa* var. *major* (d) as a function of time under grazing. MSR= mean effective stocking rate (coarse line), LSR=0.2 × MSR (thin line), HSR=1.8 × MSR (dotted line).

** : $p < 0.01$; * : $0.01 < p < 0.05$; ⁰ : $p > 0.05$

References

- Cingolani, A., Posse, G., & Collantes, B. (2005). Plant functional traits, herbivore selectivity and response to sheep grazing in Patagonian steppe grasslands. *Journal of Applied Ecology* 42, 50-59.
- Chapin, F.S., Bloom, A.J., Field, C.B., & Waring, R.H. 1987. Plant responses to multiple environmental factors. *BioScience*, 37 : 49-57.
- León, R., & Aguiar, M. (1985). El deterioro por uso pastoril en estepas herbáceas patagónicas. *Phytocoenologia* 13, 181-196.