

# Introducing grassland restoration to southern Brazil

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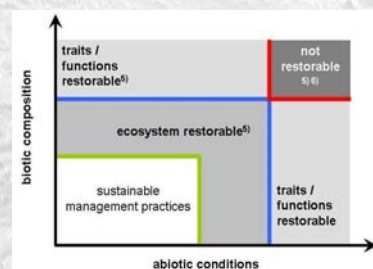
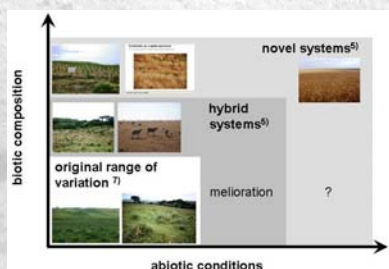
South America contains large areas with highly diverse primary grasslands<sup>1</sup>. Conservation of these ecosystems was prioritized by an IUCN-resolution in 2008<sup>2</sup>.



In Rio Grande do Sul, Brazil, ca. 50% of the original grassland area has been converted<sup>3</sup>, while knowledge on biodiversity and function of these ecosystems is still fragmentary. Inadequate pasture management promotes exotic species invasions, while legal protection (~2% grasslands<sup>4</sup>) favors establishment of woody species.



Ecological restoration of degraded or transformed grasslands<sup>5</sup> is a new field of research in Brazil.



The outer left figure<sup>5</sup> indicates the hypothesized conditions of native southern Brazilian grasslands subjected to different types of land use change and ecosystem degradation.

Restorability of these hybrid or novel ecosystems, including specific functions and traits, depends on the degree of biotic and abiotic modification<sup>5,6</sup>.

## Collaboration aims:

To provide practitioners of restoration with sets of reference states and of techniques suitable for restoration, monitoring and subsequent management of southern Brazilian grasslands in a hybrid or novel state.

## Project approach:

- 1) Combine Brazilian expertise on grassland diversity and dynamics with European grassland restoration expertise
- 2) Identify hybrid and novel grasslands in southern Brazil by literature reviews and field work
  - Assess and compare the legal and administrative framework for grassland restoration and conservation
  - Establish a network of scientists, planners and practitioners involved in grassland restoration and conservation
  - Review and modify European grassland restoration concepts and techniques to suit Brazilian needs
- 3) Experimentally test novel grassland restoration concepts and techniques in southern Brazil

**References:** 1) Soriano, A. 1992: Río de la Plata Grasslands. Ecosystems of the world 8A. In: Coupland, R.T. (ed.) Natural grasslands. Introduction and Western Hemisphere. Elsevier, Amsterdam, p. 367–407. 2) IUCN 2008: Resolutions and Recommendations. Proceedings of the World Conservation Congress in Barcelona, 5-14 October 2008. IUCN, Gland, Switzerland. Online, URL: <http://data.iucn.org/dbtw-wpd/edocs/WCC-4th-005.pdf> [accessed 2010-12-15]. 3) Cordeiro, J.L.P. & Hasenack, H., 2009: Cobertura vegetal atual do Rio Grande do Sul. In: Pillar V.D., Müller, S.C., Castilhos, Z.M.S. & Jacques, A.V.A. (eds). Campos Sulinos: Conservação e Uso Sustentável da Biodiversidade. Brasília: Ministério do Meio Ambiente, p. 285-299. 4) Overbeck, G.E., Müller, S.C., Fidelis, A.T., Pfadenhauer, J., Pillar, V.D., Blanco, C.C., Boldrini, I.I., Both, R. & Forneck, E.D. 2007a: Brazil's neglected biome: the South Brazilian Campos. Perspectives in Plant Ecology, Evolution and Systematics 9: 101-116. 5) Hobbs R.J., Higgs E. & Harris, J.A. 2009: Novel ecosystems: implications for conservation and restoration. Trends Ecol. Evol. 24: 599-605. 6) Cramer, V.A., Hobbs, R.J. & Standish, R.J. 2008: What's new about old fields? Land abandonment and ecosystem assembly. Trends in ecology & evolution 23 (2): 104-112. 7) White, P.S. & Walker, J.L. 1997: Approximating nature's variation: selecting and using reference information in restoration ecology. Restoration Ecology 5(4): 338-349.

**Images:** Top row, left to right: IUCN<sup>2</sup>; J.-M. Hermann; G. Overbeck; G. Overbeck; Internet, URL: <http://www.not1.com.br/wp-content/uploads/2010/10/campo-ou-pampa-bioma-300x225.jpg> [accessed 2011-05-15]; J.-M. Hermann; <http://commons.wikimedia.org/wiki/File:La%C3%A7ador.jpg> [accessed 2010-12-14]. Middle row, left to right: Marcio Voss, [www.cnpt.embrapa.br/biblio/p\\_co108.htm](http://www.cnpt.embrapa.br/biblio/p_co108.htm) [accessed 2011-05-16]; J.-M. Hermann; J.-M. Hermann; G. Overbeck; Internet, URL: <http://wp.clicrbs.com.br/campoelavouranagaucha/2010/09/12/combate-ao-capim-annonni/> [accessed 2011-05-15]

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