

Post-Doctoral Scholarship in Quantitative Ecology

Federal University of Rio Grande do Sul, Porto Alegre, Brazil

We announce a Post-Doctoral position to develop research on the analysis of multidimensional causes and effects across ecosystem trophic levels at the Department of Ecology, Federal University of Rio Grande do Sul (UFRGS). The project is planned for two years and will involve the participation of the Italian mathematician-statistician, Prof. Sergio Camiz (Sapienza Università di Roma), together with a PhD student, in the activities of the Quantitative Ecology Lab led by Prof. Valério Pillar at UFRGS. The position is forecast starting March 2015.

This project aims at adapting/developing and evaluating methods for (1) the analysis and testing of hypotheses concerning multidimensional causes and effects across ecosystem compartments and (2) the analysis of the temporal dynamics of communities and ecosystems. For this, the methods should compare data tables in order to derive information concerning the relations among the items belonging to different ecosystem compartments, which are then used for the testing of causal connections and for examining temporal dynamics.

These two proposed research subjects are closely linked to the needs of on-going projects in the Quantitative Ecology Lab within the framework of the national program of biodiversity research (PPBio) and the long-term ecological research program (LTER-PELD), respectively funded by CNPq and co-funded by CNPq/FAPERGS, which study the southern Brazilian grassland biome (Campos Sulinos / Pampa). These projects involve the exploration and testing of hypotheses on causes and effects across ecosystem compartments, linking biodiversity to environmental drivers (climate, soil, land use, management), among different trophic levels (plant, arthropod, bird, amphibian and fish communities), and to ecosystem processes and services (biomass and forage productivity, biomass decomposition, carbon fluxes, temporal stability). Also, questions about the analysis of temporal dynamics of communities and ecosystems are relevant, since both projects involve long-term monitoring.

The post-doctoral researcher's profile is of a PhD in mathematics, statistics or quantitative ecology, with a good background in multidimensional analysis, and strongly committed to applications, in particular community ecology. Previous publication on the said subjects is desired. Proficiency in English and relevant programming languages (Fortran, C++, and/or R) for data analysis development are essential requirements. Experience with related methods for the multidimensional analysis, in particular of multiple tables (e.g., path analysis, structural equation modelling, Procrustes analysis, partial least-squares) are desired, as well as the ability to both handle and develop the theoretical aspects of the matter.

The scholarship monthly amount of R\$ 4,100 (free of income tax) will be paid for two-years by the National Research Council (CNPq, Brazil), plus a residential moving payment of R\$ 3,900. The project is funded by the Brazilian Federal Government under the Science without Borders Program.

Candidates should contact either Prof. Valério Pillar (vpillar@ufrgs.br) or Prof. Sergio Camiz (sergio.camiz@uniroma1.it).