Final Report

The Chaco is a vulnerable ecoregion and of the highest conservation priority at a regional scale. In Argentina, it is the most extensive biome, and almost every area has been altered by human activities. Logging is one of the most frequent and widespread sources of disturbance in the Chaco. Wood extraction is done by two logging systems: selective (timber, railway ties, posts) and integral logging (firewood, charcoal). Nevertheless, little is known about their impacts on plant communities.

Objective:
Our objective was to assess the immediate and short-term (3-5 years) impacts of two logging systems on regeneration and diversity of the Chaco forest. We consider the objectives satisfactorily accomplished.

Preliminary results:
We studied 7 new sampling sites with the support of our Rufford Small Grant. Overall, we have detailed information on woody vegetation from 11 sampling sites: 3 unlogged forests, 2 forests that were selectively logged 6 months ago, 2 forests that were integrally logged 6 months ago, 1 forest that was selectively logged more than 10 years ago, and 3 forests that were integrally logged more than 10 years ago. In these 11 sites, we assessed 130 sampling units (200-m2 plots), a total of 2.6 ha were sampled, a significant advance in the sampling to finish my doctoral thesis fieldwork (over 70%).

The main product of our research has been the publication in an international journal of high impact, 1 congress presentation, and 2 publications in progress. Although most the information is being analyzed for further publication, preliminary results show that canopy cover has significantly declined at sites integrally logged (62%). The selectively logged sites had a higher canopy cover (80%), but lower than that of the unlogged forests (86%). Respecting forest regeneration, we have so far analyzed density saplings (individuals & lt; 5mm diameter). The sites logged more than 10 years ago (integral and selectively) had the highest sapling density, mainly due to one shrubby species (Acacia praecox) which tends to increase density in logged forests. Finally, the sites logged more than 10 years ago had the highest species richness, because time was enough for establishment of pioneer species common in open and degraded areas.

Teaching and Development activities:
The environmental problems of Chaco region and preliminary results of the present work have been used as classroom examples and included in the Exercise Guide for the Experimental Design Course. Thus, Chaco's environmental problems are being discussed by undergraduate students of Biology, Agronomic Engineering and Engineering of Natural Resources and Environment careers, Salta National University. Also, we used these examples in the post-graduate course of Experimental Design addressed to professionals of different branches of science.

Education – Public Information:
As regards extra-curricular activities, preliminary results were exposed and discussed in a workshop to teachers of local schools nearby the National Park, and presented in other 2 opportunities to the general public in Salta and Santiago del Estero provinces, Argentina. Part of the research team belongs as a member of the Assessor Commission of Copo National Park, and participates actively in the elaboration of the management plan of the protected area.

At the same time, we participated in studies aiming at the definition of a biodiversity base line and biodiversity monitoring plan for Copo National Park, in the frame of the Project "Conserving Biodiversity" (Administración de Parques Nacionales - GEF/BIRF). The results of these studies, and those obtained in the present work, are fundamental elements to (a) elaborate the management plan of the protected area, (b) plan biodiversity monitoring, and (c) evaluate the ecological sustainability of logging in the Semiarid Chaco.