



Abstracts

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Where does the forest come back from? Soil and litter seed banks and juvenile bank as sources of vegetation resilience in the face of land-use change in a semiarid Neotropical forest

Maria Lucrecia Lipoma¹, Valentina Fortunato², Lucas Enrico¹, Sandra Díaz¹

¹ IMBIV (UNC-CONICET) and FCEFyN, UNC (Córdoba, Argentina)

² FCEFyN, UNC, Córdoba, Argentina (Córdoba, Argentina)

Presenting author: lucrecialipoma@gmail.com

The existence of reservoirs from which dominant species could recruit after disturbance is considered a key factor in ecosystem resilience. The literature on the role of soil seed banks in community regeneration is vast for sub-humid Holarctic systems, but much scarcer for semiarid Neotropical ones. Additionally, litter seed banks and juvenile plant banks have been scarcely studied worldwide. In this study, we aimed to analyze the different reservoirs from where dominant woody species regenerate from in the semiarid Neotropical Chaco forest of Córdoba, Argentina, and, whether the soil and litter seed banks, and the juvenile bank are effective sources of resilience of these forests in the face of different land use regimes. We selected four ecosystem types subjected to increasing long-term land-use intensity: primary forest (with no land use in the last 50 yr), secondary forest (with low land use intensity), closed species-rich shrubland (with moderate land use intensity), and open shrubland (with high land use intensity). We monitored four sites per ecosystem type. At each site we recorded the % cover of adults and the number of juveniles (saplings and seedlings) of all woody species. Additionally, we collected litter and soil samples that were then processed in the lab for taxonomic identification and germinability of seeds. We compared the species composition of the soil, litter and juvenile banks ("reservoirs") with that of the established vegetation within each ecosystem type. We also compared the reservoirs from different ecosystem types with the established vegetation of the primary forest, considered as the reference ecosystem. Woody species were absent from the soil seed bank, but were very well represented in the litter seed bank and juvenile bank from different ecosystem types. These two reservoirs showed high similarity with the established vegetation within each ecosystem type. However, increasing land use intensity decreased similarity between the reservoirs from each of the three ecosystem types subjected to land use and the established vegetation of the primary forest. Litter seed and juvenile banks, but not the soil seed bank are the main reservoirs of dominant woody species in the Chaco forest. However, the ability of these reservoirs to act as sources of resilience decreases as land use intensifies.