Islands of forests among savannas: key elements for conservation and production in the Paraguayan humid Chaco

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Abstract

This chapter provides information on islands of forests immersed in flood-prone savannah-dominated landscapes for biodiversity conservation and productive activities. Our study area in the Paraguayan Chaco is in a region dedicated to low intensity cattle rearing, with native grasslands as forage within a mosaic of natural plant formations. The region is highly diverse due to the variety of plant formations and the great amount of wild fauna. We present results of research projects conducted by the American Chaco Research Center, a Paraguayan research initiative. These results suggest that extensive or semi-extensive ecosystem-based livestock production could be an opportunity to maintain ecosystem services, including biodiversity, in the region via a production system that is highly compatible with the conservation of forest species. Adverse environmental conditions for production (such as floods from rain and periodic floods of the Paraguay River) underscore the importance of maintaining the regulating functions of natural ecosystems, which leads to an opportunity for the conservation of threatened biodiversity. The mosaic of forest islands, flood-prone palm savannas, and wetlands is fundamental for water quality and hydrological regulation as it reduces the intensity of the effects of flooding on neighboring areas, as well as for carbon sequestration. Inclusion of live fencing and the maintenance of continuous areas of intact or lightly disturbed vegetation can increase habitat connectivity, provide a barrier to manage fires, and serve as a refuge for animals when fires occur. These native ecosystems are at high risk of disappearing due to the intensification of agriculture and livestock production, as well as the expansion of urban areas, so strategies for their conservation, including tailor-made incentives are needed.