

Article title	The Native Shrubs <i>Philiostigma reticulatum</i> and <i>Guiera senegalensis</i> : The unrecognized Potential to Remediate Degraded Soils and Optimize Productivity of Sahelian Agroecosystems
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Abstract	The global objective of this study was to determine the unrecognized role of shrubs as key determinants in sequestration of C, water relations, and soil degradation mitigation in semiarid climatic regimes of Senegal that are representative of much of Sub-Saharan Africa. The results showed that shrubs are the dominant controllers of hydrology, C biomass on the landscape, microbiology, and crop productivity in agroecosystem of Senegal. The major findings were: Shrubs residues decompose rapidly enough to allow non-thermal management. Shrub residues promote crop growth but it takes 2 years of incorporation before beneficial impacts on crops were measured. Both shrubs are doing hydraulic lifting of water from wet subsoils to dry surface soils Shrubs are non-competitive with crops for water and increase water and nutrient efficiency. During periods of excess rainfall shrubs promote groundwater recharge and therefore reduce surface runoff losses. <i>G. senegalensis</i> had the most profound impact on yields which after four cropping the declining yields in the absence of crops resulted in a 242% difference in yield between plots with and without this shrub. These positive impacts occurred even in the absence of fertilizer applications
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