

Fog collection as a strategy to sequester carbon in drylands

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Advection fog is the sole source of water for many near-the-sea arid areas worldwide such as the lomas of Southern Peru, where deforestation occurred since XVI century, leading to a progressive and severe desertification. This work presents the results of an experimental reforestation project carried out in Mejia, where trees of five species were planted in 1996, some of them irrigated with artificially fog-collected water. Later, all the trees were left to grow relying on fog water collected by their canopy. Survivorship, height, and collar diameter were monitored until 2010, while final soil carbon and nitrogen stocks were measured in 2010. After 14 years from planting, about 65% of trees were still alive and growing, and reforestation induced fast and substantial carbon sequestration both above- and below-ground. Greater attention should be given to fog collection techniques for reforestation, taking in consideration also the most suitable tree species to plant, in relation to local biodiversity.