

Forestry and agriculture in Puerto Rico

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The trees we consider native got here first. They resisted hurricanes, covered the entire island (Abbad y Lasierra 1831) and obviously are adapted thereto. By about 1930, 94 percent of Puerto Rico had been deforested and farmed (Koenig 1953). During that time wood almost entirely ceased to be used locally for structures, furniture, and cooking fuel. We had come to live without local forests. By 2006 we imported \$7,000,000 worth of tropical woods like those formerly in the local forests (Puerto Rico 2006).

Agriculture was next. Beginning in the 1950's, arduous farm labor was sending recently schooled farm offspring to a better life in the cities. By 2012 the remaining land area from which crops were harvested was reduced to some 50,124 hectares, about 12 percent of rural Puerto Rico (USDA 2012). By 1994 Puerto Rico was importing more than 20 percent of its milk, plantains, and fruits, more than 30 percent of its coffee, more than 40 percent of chickens, yams, and pineapples, more than 50 percent of eggs, yautias, malangas, cassava, and sweet potatoes, and more than 70 percent of ham, beef, and pigeon peas (Vicente 1994). Puerto Rico, with no more than one tenth of a rural hectare of land per capita (Martinuzzi, Gould, and Ramos 2007) had lost not only nearly all of its forests and its agriculture but also most of its rural land, less than one tenth of a hectare per capita (Martinuzzi, Gould, and Ramos 2007)

The justification for forests

- Control of freshwater reservoir sediment (Smith and Abruña 1955).
- Habitat for the survival of the native terrestrial flora and fauna.
- Production of wood suitable for artisans, furniture, and charcoal

The justification for agriculture

- Insular food security in time of emergencies.
- Widespread potential unequaled gainful rural employment.
- Presently needed contribution to the world food supply.

Happily, opposites guide the respective best lands for forests and agriculture. Forest protectiveness increases with steepness, and agriculture erodes soil less on lands with least slope. Puerto Rico's planned agricultural potential would use 245,479 hectares of land (Vicente 1994). Assigning to agriculture the presently available rural lands of 40 percent slope or less would include 277,957 ha (Martinuzzi, Gould, and Ramos 2007, USGS), apparently sufficient.

As for forests, there are in Puerto Rico 152,163 hectares of rural lands steeper than 40 per cent, 17 per cent of the island (Martinuzzi, Gould, and Ramos 2007). Land in the watersheds of the 20 principal reservoirs, where forests are especially needed, cover 244,139 hectares (Vicente 1994) Of these lands, judging by the proportion steeper than 40 per cent in the rest of the rural lands, not less than 86,425 hectares (35.4%) are as steep as 40 per cent and should be kept protected by forests.

With forests covering 62 percent of the land (Martinuzzi, Gould, and Ramos 2007) it is apparent that forests today cover much of the land needed for both potential agriculture and for protective forests. To the degree that forested land is less steep than 40 percent, deforestation would be a requirement for the recovery of past agriculture. Done carefully and applying known soil conservation practices, this would be a productive development.

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