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## Food and Timber Plants from Mexico, their Response to Spatio-Temporal Variations and Implications for Rural Development

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### Abstract

Tamaulipan thornscrub is the native vegetation of northeast Mexico. Most of its plant species are used by the rural community for different purposes including fodder, timber, traditional medicine and food. Tamaulipan thornscrub is severely fragmented due to land use change to give way to agriculture and induced buffel grasslands for cattle grazing. The remaining fragments vary in size from a few hundred hectares to those under one hectare, with the most common not larger than ten hectares each. Isolated trees of useful species remain inside induced grasslands and sometimes even inside agricultural lands. Thus, for a given individual tree, conditions vary from growing inside native vegetation to growing isolated in a human made landscape with varying competition, pollinators assemblages and seed dispersers that may influence individual reproductive fitness. In addition to spatial variation, there is little information on the influence of temporal variations such as climatic events on growth and reproduction of thornscrub plants. In here we studied three of the more economically important species from thornscrub: *Prosopis laevigata* (mesquite), *Ebenopsis ebano* (Texas ebony) and *Capsicum annum* (wild chili) that provide good quality timber, fodder (mesquite and Texas ebony), charcoal (mesquite), and edible fruits (wild chili) and pods (mesquite and Texas ebony). We determined that (i) wild chili does not establish seedlings above its current elevation range as was predicted by climate change; (ii) variations in rainfall and temperature over the past 15 years did not affect flowering and fruiting of mesquite but affected flowering events of Texas ebony; and (iii) isolated mesquite trees produced many times more fruits and seeds than those inside native vegetation, although the number of seedlings was similar under both conditions perhaps as a result of differential seed harvesting. The implications for management and rural development are discussed.

**Keywords:** Elevation, fragmentation, rural development, weather variations