

Caatinga biomass estimation

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A tree of Mimosa tenuiflora showing the regrowth two years after pollarding. Credit: P. Gasson

Scientists from Kew and Brazil are analysing data from field experiments to determine the best way to manage trees for sustainable fuelwood production.

As part of a project on the sustainable management of fuelwood <u>trees</u> in regenerating caatinga of Pernambuco State, Brazil, new allometric equations have been developed to estimate the <u>biomass</u> of the four study species: Mimosa ophthalmocentra, M. tenuiflora, Caesalpinia pyramidalis and Croton sonderianus.

From measurements of 1,200 individuals, it was found that previous equations for mature caatinga and other tropical vegetation types overestimated the biomass of the study trees by more than 20%, possibly because the trees have reduced crowns and lower branch masses. The



best fitting of the new allometric equations were power equations based on tree diameter at breast height, with little improvement by including height, crown area and/or wood density.

Such equations have rarely been validated in field conditions and never for dry tropical forest such as caatinga. There is clearly some risk involved in extrapolating equations from one site or vegetation type to another. The results are published in the journal *Forest Ecology and Management*.

Provided by Royal Botanic Gardens, Kew

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