

Referência Completa do Artigo:

Guedes, B. S., A. A. Siteo, and B. A. Olsson. 2018. "Allometric Models for Managing Lowland Miombo Woodlands of the Beira Corridor in Mozambique." *Global Ecology and Conservation* 13.

Resumo Original (Abstract):

Appropriate allometric models are urgently needed to assess the status and changes in biomass and carbon of the trees in miombo woodlands occupying large geographical areas in Mozambique. This study developed two new and interchangeable allometric models for estimating total above-ground biomass (AGB) of lowland miombo woodlands in the Beira corridor, central Mozambique, based on stem diameter at breast height (DBH) and stump diameter (SDI). The Beira corridor study area covers approximately 29,000 km², of which about three-quarters is lowland miombo woodland. The SDI-based model is proposed principally for estimating total AGB (stem, branches, foliage) of harvested trees/shrubs when diameter cannot be measured at breast height, and thus to reconstruct the former biomass in forests subjected to logging, or clear-cutting for agriculture. The DBH-based model and SDI-based model were fitted using data on a destructive sample of 155 trees, which were representative of tree sizes (diameter and height) and tree species in the Beira corridor area. The following allometric models were developed: DBH-based model [tDW (kg tree⁻¹) = 0.1754 * (DBH) 2.3238], with prediction performance, i.e. adjusted R-squared 98-99%; and SDI-based model [tDW (kg tree⁻¹) = 0.08495 * (SDI) 2.3987], with prediction performance 86-96%. Carbon comprises 50% of biomass. Both the DBH- and SDI-based models can be used for estimating total AGB of lowland miombo woodlands with a high degree of reliability, based on field inventory within the Beira corridor region. Evaluation of the mathematical and statistical credibility of these models, which was carried out on the construction dataset (verification procedure) and independent dataset (validation procedure), gave satisfactory results. Moreover, when applied on our data, these models were more appropriate for the Beira corridor than allometric models found in the literature. However, application of both models should be restricted to

the lowland miombo type in the Beira corridor, not mountain miombo.

Palavras Chave (Keywords):

DBH, Stump diameter, Biomass reconstructing model

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