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The Biotic (Longhorned Beetles: Cerambycidae) and Abiotic (Drought) Effect on the Production and Sustainability of *Acacia senegal* (L). Wild: Case Study of Northern Kordofan, Sudan

Maymoona Ahmed Eisa[1], Hanan Mohamed Elhadi[2]

[1] *Technische Universität Dresden, Institute of Forest Botany and Forest Zoology, Germany*
[2] *Justus-Liebig University Giessen, Project and Regionalplanning, Germany*

Abstract

The *Acacia senegal* tree, producing gum Arabic provides an important source of cash income to the farmer population in the northern Kordofan State. Moreover, the tree serves economical as well as environmental functions. It provides fodder and fuel wood and perhaps increases crop yields through nitrogen fixation. In addition, it offers protection to the soils against desertification which is a perpetual soil productivity declining hazard arising from climate variation and human use of the land. Since the 1980s the decline of gum Arabic production has been reported by many investigators. Biotic factors such as insect pest attacks as well as drought affected the study area in different periods and were the major causes of this decline. Based on a questionnaire this paper evaluates the effects of the longhorned beetles (Cerambycidae) and drought on the production and sustainability of *A. senegal*. The results reveal that most of the respondents in the northern Kordofan State stated knowledge about the longhorned beetles. Moreover, 55.4 % of the respondents mentioned an effect of longhorned beetles by killing of the gum tree. 4.6 % mentioned a reduction in gum production whereas 38.5 % indicated both killing of the tree and a reduction of the gum production. On the other hand the study discovered the significant impacts of drought periods on the productivity and the sustainability of the gum tree, which lead to a 90 % reduction of gum and gum trees and consequently desertification. It could be recommended that forest extension service need to work closely with farmers of gum belt to diffuse knowledge of *A. senegal* insect pests. Efforts should be made by governmental and non governmental institutions to encourage farmers to regenerate and conserve gum trees and consequently improve the livelihood of the farmers.

Keywords: *Acacia senegal*, drought, gum Arabic farmers, longhorned beetles, northern Kordofan, Sudan

Contact Address: Maymoona Ahmed Eisa, Technische Universität Dresden, Institute of Forest Botany and Forest Zoology, Piennerstr. 7, 01735 Tharandt, Germany, e-mail: maymoonaeisa@yahoo.com