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# Population structure and regeneration status of *Vitellaria Paradoxa* (C. F. Gaertner) under different land management regimes in Atacora department, Benin

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**Abstract** *Vitellaria paradoxa* (shea) parklands are one of the major features of the Sudanian savannah. Besides the parklands importance in terms of provision of ecosystem services, they play a major role in satisfying household subsistence needs. However, the shea trees on farms are under threat due to the increasing population growth, inappropriate agricultural practices and increasing effects of climate change. Thus, we examine the *V. paradoxa* population structure and its regeneration status in parklands under different land management regimes in four communes of Atacora department in Northern Benin. Dendrometric parameters were measured in five plots of 50 × 50 m in each commune and land management regime and the number of seedling and coppice were assessed. We applied Weibull theoretical model to compare measured and expected diameter classes' densities. The tallest and largest individuals were recorded in fields while old fallows had the maximum tree density and regeneration across sites. In over-all, the tree densities across sites as well as regeneration were low in fields and young fallows. We also found that the land management regime significantly influenced regeneration particularly the coppices. On the other hand, the distribution of diameter classes showed that shea agroforests was represented by small diameter classes implying a stable and regenerating population in 92 % of visited sites, irrespective of the land management regime. Thus, the state of regeneration in shea parklands appeals for an improvement in the management of juveniles, a guaranty of future stable population.

**Keywords** *V. paradoxa* · Shea agroforests · Land management regime · Fallow

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