Abstract
Non-timber forest products (NTFPs; fruits, seeds, leaves, roots etc.) make a major contribution to the livelihoods of the West African population: Roughly 39 % of total household income in rural Benin is constituted by NTFPs. However, these ecosystem services are threatened by climate and land use change. Thus, our present study aimed at 1) the quantification and monetary mapping of important NTFPs and 2) developing a novel approach to assess the impacts of climate and land use change on the economic benefits derived from these NTFPs. We performed household interviews in Northern Benin to gather data on annual quantities of collected NTFPs from the three most important savanna tree species: Adansonia digitata, Parkia biglobosa and Vitellaria paradoxa. The species’ current and future (2050) occurrence probabilities were assessed by calibrating niche-based models with climate and land use data at a 0.1° resolution (cell: ~10 × 10 km). These modelled species’ occurrences were then linked to the spatially assigned monetary values in order to assess future economic gains and losses, respectively. Next to locally high gains, large areas are projected to lose up to 50% of their current economic value by 2050. Our findings provide a first benchmark for local policy-makers to economically compare different land use options and adjust existing management strategies.