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"Solidarity in a competing world — fair use of resources"

Spatially Explicit Threat Assessment to Target Food Tree Species in Burkina Faso

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Abstract

There is a general agreement on the need to ensure the *in situ* conservation and availability of valuable genetic resources of wild species that are important for food security and nutrition. In order to be able to adopt adequate conservation measures a spatial assessment of their distribution and a sound analysis of the causes of and their sensitivity to threats is required.

The ADA funded project "Threats to priority food tree species in Burkina Faso: Drivers of resource losses and mitigation measures" gave us the opportunity to develop a spatially explicit threat assessment methodology with focus on expert feedback, as there is no comprehensive and standardised approach available at the moment. Relevant threats were identified jointly with regional project partners from INERA and CNSF during meetings in Ouagadougou in 2012 and 2013 and by means of a case study on farmers' perception. Once determined were the most important ones (overexploitation, overgrazing, fire, climate change, cotton production and mining) we identified openly accessible datasets suitable to represent the spatial patterns of threat intensities throughout the country. Now we needed to transform the threat intensities into potential impact over the target species distribution ranges.

To do so the distribution and threat sensitivity of 16 food tree species were assessed by 17 local and international experts by means of an online feedback survey that was specifically developed for this project. These experts were asked to rate on a five point scale different distribution models and the sensitivity to threats. The survey was analysed applying a consensus method to identify the most consistent distribution model and threat specific sensitivity rating on a species by species basis. The potential impact of climate change was modeled using Global Circulation Models (GCM's) deriving from the fifth assessment of the Intergovernmental Panel on Climate Change (IPCC5) in 2014.

The results were then used to calculate and create individual and combined threat potential maps that enable the identification of areas in Burkina Faso where species are highly threatened. The spatial patterns of the threat levels provides evidence to prioritise food tree populations with relative urgency for undertaking conservation actions.

Keywords: Assessment, Burkina Faso, climate change, cotton production, distribution modelling, fire, food tree species

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