Conservation of Genetic Resources and Improvement of Agroforestry Tree Species in Sub-Saharan Africa: An Overview

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Abstract

Increased populations and pressure for social and economic development in African countries contribute to a trend of diminishing areas under forest cover despite concern for the tropical forest. Sub-Saharan forests are amongst the most important repositories of terrestrial diversity. This diversity, rapidly diminishing, includes variation at landscape, ecosystem, species, population, individual, and molecular levels of biotic organization. African forests provide a wide range of products and services to people throughout the African continent, especially to the rural poor communities. They are sources of timber, food, including fruits, fats, oils, leafy vegetables, nuts and condiments, which complement staple food crops in the local diet. Many local trees and shrubs are sources of micronutrients for communities through the consumption of fruits and vegetables. The overall goal in the management of forest genetic resources is to help ensure that forest biological diversity, at all levels, is conserved, managed and sustainably utilised in support of local and national development, including food security, poverty alleviation, environmental conservation, economic and social advancement and the maintenance of cultural and spiritual values.The exploitation, uses and commercialisation of these tree products from food tree species, constitute an important activity of people living within and around forests. However, indiscriminate forest loss and fragmentation in Africa is having a direct effect on the habitats of valuable plants. Habitat loss is driving increased extinction rates of tropical plant species and is causing reductions in species populations. Therefore, while forest loss and fragmentation, conversion to farmland and degradation can cause plant biodiversity losses in one form or another they also indirectly hamper regeneration rates and help accelerate species rarity, isolation and extinction rates, especially of food tree crops. Faced with such global challenges, there is an urgent need for the conservation and management of indigenous tree genetic resources in sub-Saharan Africa. This essay gives an overview on the domestication and improvement of key agroforestry tree species; and the challenges in the conservation of their diversity for future generations and for the environment.