

## HAFL Master's Thesis Abstract

*Year:* **2014**

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*English Title:* **Maintaining Agrobiodiversity in Man and the Biosphere (MaB) reserves in Guantánamo, Cuba - Driving forces influencing on-farm agrobiodiversity**

*English Summary:* The recent shift towards the inclusion of human interests in nature conservation signals a broadening perspective among conservationists. Earlier practices of fencing off pieces of nature to “mitigate” human influence proved to be unsustainable regarding social and conservation impacts. One of the first and best-known concepts aiming to reconcile biodiversity conservation with its sustainable use is the UNESCO’s Man and the Biosphere reserve model. While environmental protection has always been an essential principle in the management of these reserves, the protection of agricultural landscapes however, has largely been neglected. In the Cuchillas del Toa MaB reserve, located in Cuba’s most eastern Province Guantánamo where about 6000 subsistence farmers live, the interface between natural ecosystems and agricultural landscapes has not been adequately investigated yet.

The present research, carried out between 2013 and 2014, aimed to investigate the agricultural landscape in the Cuchillas del Toa MaB reserve by assessing the prevailing farming systems, analytically describing the agricultural practices and by identifying the socio-economic factors that influence farmers’ livelihood. The research objective was to determine the most important driving forces for maintaining on-farm agrobiodiversity in the Cuchillas del Toa MaB reserve in order to buffer the negative ones and to maintain the rich agricultural landscapes found in this reserve. A household-level survey was conducted in two different agro-ecological zones (coastal and mountain area) and the research included a participatory farmer workshop to identify opportunities, synergies and trade-offs considering the use of agrobiodiversity as an option to improve the conservation of protected areas.

Although the present research provides evidence that farmers maintain and use a wide range of traditional varieties and their wild relatives, on-farm agrobiodiversity in small family farms in the Cuchillas del Toa MaB reserve is in danger. Socio-economic aspects appeared to be the primary influencing factors in reducing on-farm agrobiodiversity. Inadequate livelihood options (e.g. lack of access to education and medical care) foster rural migration leading to unclear intergenerational tenure over farm holding and consequently result in the loss of agrobiodiversity. Missing work forces, limited transportation infrastructure and bad roads create missing possibilities to commercialize farm products, concentrating only on a couple of cash crops. Increasingly simplified eating habits and the rapid extinction of farmers’ traditional knowledge even accelerated this reduction of diversity. Additional negative impacts are given by unsustainable management practices of natural resources due to

poorly defined legal concept in buffer and transition zones, along with decreasing soil fertility and increasing use of chemicals.

Based on these results, several actions can be recommended: To slow down rural-to-urban migration in the most remote located MaB reserve areas, basic infrastructure should be improved. There is also an urging need to demonstrate the multiple values of agrobiodiversity and to ensure that these values are recognized by policy makers and in markets. A valuable option is the development of a MaB-reserve linked label promoting regional food products from the Cuchillas del Toa MaB reserve. Further, it is recommended to promote awareness for the values of farmers' traditional knowledge and ensure its documentation, as well as to establish effective MaB reserve management plans for buffer and transition zones and train farmers in sustainable management practices. To conclude, it has to be highlighted that there is no one-size-fits-all solution to implement the dual "conservation" and "sustainable use and development" goals in a MaB reserve area. Only with the development of an innovative and flexible approach being adaptable to different situations and taking into consideration the local needs and conditions of the rural farming communities in the different parts of the reserve, the MaB reserve concept can be successful in reality.

*Keywords:* Agrobiodiversity, Man and the Biosphere, agro-ecological zones, agricultural practices, protected areas, livelihoods options

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