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Determining Right Priorities for Conserving Farm Animal Genetic Resources — The Case of Borana Cattle in East Africa

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Abstract

Borana cattle have their origin in Southern Ethiopia and Kenya where they are guarded by the Borana-Oromyfa clans in the harsh environment of the Borana plateau. Borana cattle are also the main source of the livestock-keepers' income and the local people's cultural identity is formed on the husbandry of these animals. Nowadays the existence of this breed and hence its cultural heritage is threatened due to intensifying crossbreeding among different breeds and eventually dwindling records of pure Borana animals. Conservation of the pure Borana genetic resources is important for future use and enhancement of biodiversity, but financial aid for conservation initiatives is scarce. This study addresses two crucial topics in conservation theory: the question of “which” Borana animals should be conserved and hence deserve priority in funding, and the question of “who” should conserve them.

370 livestock-keepers on the Borana plateau were selected for conducting semi-structured questionnaires and choice experiments. The models were then analysed using NLOGIT 3.0. The first question is driven by the fact that currently three different subtypes of the Borana breed are known and kept on the Borana plateau. Appropriate allocation of funds among them must take place according to their economic and genetic values. Economic values are determined by applying a discrete choice analysis estimating the livestock-keepers' willingness to pay and relative preferences for different attributes of the Borana cattle. Genetic values depend on two factors, namely the level of extinction probability and the level of marginal genetic diversity. Both factors are incorporated into the model and together with economic values form the total value of Borana cattle and its subtypes.

The question of “who” should participate in conservation initiatives requires the consideration of individual livestock-keepers' characteristics into the model revealing heterogeneity in livestock-keepers' preferences and willingness to pay for different cattle attributes. A random parameter logit model is used seeking to establish different groups of livestock-keepers that can be targeted for conserving Borana.

Results suggest that Borana cattle are particularly important because of their adaptability and performance attributes and that their values vary significantly among livestock-keepers with different production systems and in different areas.

Keywords: Animal genetic resources, choice experiment, East African Borana cattle, random parameter logit