

Abstract submission: Synthesis talk

Buffalo, cattle and their interactions at the edge of transfrontier conservation areas: synthesis of research carried out 2008-2015 in Hwange NP, Gonarezhou NP and their peripheries (Zimbabwe)

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The coexistence of protected areas and neighbouring communal areas in Southern Africa is jeopardised by negative interactions between wildlife and villagers and their livestock. The African buffalo (*Syncerus caffer*) has often been blamed for a significant proportion of the "human-wildlife conflicts", mainly through the transmission of pathogens to cattle, competition with livestock for grazing and water resources, and also occasionally involved in crop destruction and threat to people's physical integrity. We present the results of several multidisciplinary studies carried out since 2008 on buffalo-cattle interactions at the periphery of Gonarezhou National Park, Hwange National Park and adjacent communal lands in Zimbabwe.

Movements of sympatric buffalo and cattle have been described at various scales using GPS collars, revealing daily/seasonal patterns and occasional events of long-distance dispersal of young buffalo females. Habitat preferences, especially for open grassland habitats, were similar between the two species, and surface availability was the key determinant of their distributions. Overall, buffalo appeared to avoid cattle, although their ranges overlapped more extensively with cattle in Gonarezhou area than in Hwange.

We defined contacts between buffalo and cattle using spatial-temporal windows compatible with the transmission of parasites and pathogens through direct contact or indirect contact with contaminated environment. Results of serological tests for various pathogens and analysis of their relationship with buffalo/cattle contacts rates confirmed the likely role of reservoir played by buffalo for several diseases (FMD, theileriosis...), whereas the results were inconclusive for several others (brucellosis, tick-borne diseases, BTB...).

Socio-economic surveys carried out in the study areas highlighted the importance of livestock keeping for small-scale farmers' livelihoods. Livestock management strategies have been elicited using participatory approaches and role-playing games, demonstrating that crop production had a major impact on cattle distribution, and thus largely determined contact patterns with buffalo. Surveys of farmers' perceptions of wildlife indicated that they were usually aware of diseases risks associated with buffalo, especially for FMD transmission to cattle.

Although our results provide evidence for competitive and negative interactions, we believe that coexistence between these two species is possible, as it already occurs in many interface areas. We discuss several livestock management strategies likely to reduce the negative impacts, while enhancing habitat quality for wildlife by maximizing grassland structural heterogeneity and providing incentives to communities to protect key seasonal ranges through grazing concessions.