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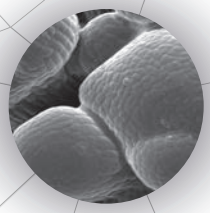

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Telemetry to study behaviours and interactions between wild and domestic ungulates at the edges of protected areas

In southern Africa, the permeability of borders between land uses, such as protected and communal areas, is conducive to wildlife-livestock interactions. It is essential to gain insight into these interactions and their determinants to enhance the management of interfaces between wildlife, livestock and humans. These interfaces catalyse some issues that are essential for the success of initiatives geared towards facilitating the coexistence of local development and biodiversity conservation. How can cattle and livestock access to natural resources such as pasture and water be achieved without competition? How can disease transmission between animals and between animals and humans be mitigated? And how can wild carnivore predation of cattle be hampered?

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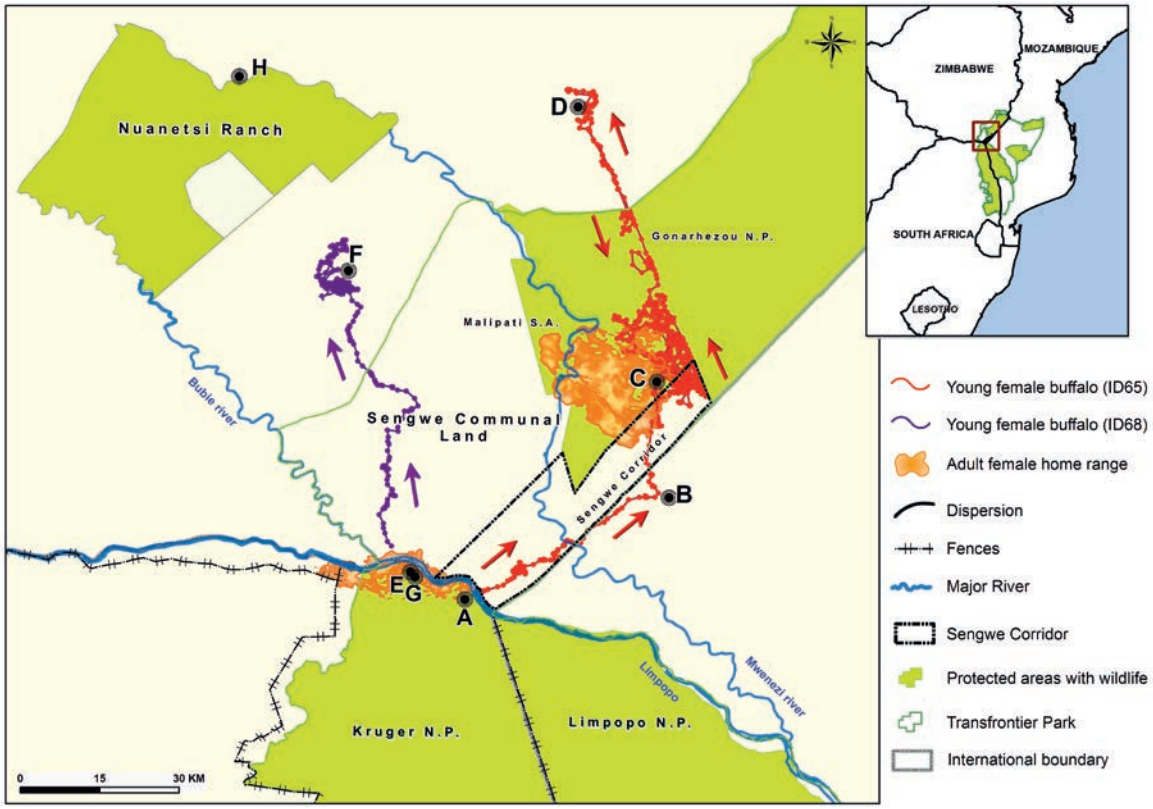
In such socioecosystems—which are by definition complex—the use of telemetry, especially via satellite (i.e. fitting GPS tracking collars on animals provides their geolocation at each predefined time step), can help to: (i) describe the behaviour of wild species that adapt to these interfaces; (ii) understand livestock farming practices and discuss them with farmers in their risky landscapes; and (iii) analyse wildlife-livestock interactions and the key factors involved. All of the collected spatial data (associated with vegetation maps, surveys on livestock rearing practices and epidemiological studies) can generate knowledge to support decision-making and management processes. This knowledge is presented, discussed and used in a participatory process between all stakeholders (farmers, wildlife managers, professional hunters, etc.). The ultimate aim is to mainstream this type of tool in local management scenarios to promote integrated management of these interfaces.



▲ *Example of telemetry data. Adult female buffalo home range (orange area) in the Great Limpopo Transfrontier Conservation Area (GLTFCA) and movement patterns of young female buffalo (red and purple lines) through the land uses and countries (a-b-c-d) from Kruger National Park towards Mozambique and Zimbabwe for the red line (g-e-f) and from Kruger in South Africa towards communal areas of Zimbabwe for the purple line. This type of behaviour had not previously been described in young female buffalo. © Marie Gely, adapted from Caron* et al., Emerging Infectious Diseases, *2016.*

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▲ *Adult female African buffalo (left) and a livestock farmer and his cow (right) inhabiting the same GLTFCA area. The two bovines were fitted with GPS tracking collars to be able to record their geolocation data over a 1-2 year period.*