Modelling cheetah relocation success in southern Africa using an Iterative Bayesian Network Development Cycle

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ABSTRACT

Relocation is one of the strategies used by conservationists to deal with problem cheetahs in southern Africa. The success of a relocation event and the factors that influence it within the broader context of long-term viability of wild cheetah metapopulations was the focus of a Bayesian Network (BN) modelling workshop in South Africa. Using a new heuristics, Iterative Bayesian Network Development Cycle (IBNDC), described in this paper, several networks were formulated to distinguish between the unique relocation experiences and conditions in Botswana and South Africa. There were many common underlying factors, despite the disparate relocation strategies and sites in the two countries. The benefit of relocation BNs goes beyond the identification and quantification of the factors influencing the success of relocations and population viability. They equip conservationists with a powerful communication tool in their negotiations with land and livestock owners, which is key to the long-term survival of cheetahs in southern Africa. Importantly, the IBNDC provides the ecological modeller with a methodological process that combines several BN design frameworks to facilitate the development of a BN in a multi-expert and multi-field domain.