Game Ranching in Botswana: Effects on Wildlife and Rural Communities

Keywords: wildlife conservation, resource tenure, community-based natural resource management (CBNRM), Botswana

Objective: To develop an interdisciplinary understanding of the effects of game ranching on wildlife conservation and CBNRM in a livestock-wildlife conflict area

Research Focus: In the mid-1990's, "Use it or lose it" emerged as a controversial wildlife policy slogan, indicating that wildlife would have to pay its way, through consumptive and non-consumptive use, if it were to survive.[1] This major shift from existing colonial protectionist strategies is a critical part of today's African land-use planning discourse. Game ranching, the focus of my research, is the intentional management and maintenance of wild animal populations for subsequent human use (i.e. meat, trophy hunting).[1] Touted by its proponents as a sustainable use of land that both conserves biodiversity and enhances livelihoods,[2] ranching already is an established industry in South Africa and Namibia. Studies show that game ranching has less impact on land than large-scale cattle ranching,[3] yet its viability for wildlife conservation continues to be debated. Furthermore, game ranching's implications for community-based management of natural resources (CBNRM) has yet to be explored. CBNRM aims to devolve management of and benefits from natural resources to communities so as to create incentives favoring sustainable use.[4] However, rights granted under CBNRM do not guarantee that communities will benefit from a given resource.[5] In Botswana, communities do not have full control over the key determinants of resource conservation and economic development—hunting quotas, market prices, robustness of wildlife populations, macro-economic/political conditions, and ownership over the land and wildlife itself.[6] Therefore, communities rarely invest in natural resource infrastructure and conservation.[7] Competition from private game ranches may also threaten CBNRM viability; however, the development of game ranching on communal lands could provide new opportunities for CBNRM projects, as game ranching by definition involves intense management of natural resources. Although game ranching on communal lands is in its infancy in Botswana, a country noted for both conservation and CBNRM initiatives, it merits study given its potential to affect the current community-based conservation model.

Social and ecological aspects of environmental phenomena have repeatedly been shown to be interdependent;[8] thus, rigorous study of game ranching requires an interdisciplinary approach. The ecological component of my research will take place on private game ranches because there are few community-managed game ranches in Botswana. I will address the question of whether game ranches promote overall conservation of wildlife species at levels similar to that of nearby protected areas (PAs), or merely conserve harvestable species with clear economic value. My sociological research on the implications of game ranching for CBNRM will examine how resource management capabilities and decision-making authority of communities change when game ranching is incorporated as a community-managed program. If game ranching on communal lands increases community security of tenure over wildlife, do communities then invest more in wildlife management?

Research Hypotheses: A) Relative to PAs, game ranches (i) maintain similar densities of economically valuable wildlife species (ii) show smaller densities of species with zero or negative economic value. B) Game ranching allows for more management over natural

resources than do other forms of wildlife use. C) Community-managed game ranches increase security of tenure over wildlife. D) Increased community management and secure wildlife tenure leads to community investment in wildlife management.

Methods: My research will combine standard ecological sampling and field methods with the sociological extended case method, which examines interacting effects of external forces on a particular case in order to modify wider theoretical assertions.[9]

Table 1. **Integrated Ecological and Sociological Research Methodology**

Ecological sampling on private game farms (target sample size = 12-14 ranches in central Kalahari)	In-depth case study at Dqãe Qare[10] (community-run game ranch in central Kalahari)
• Determine distribution & abundance of species with (+), (-), and no economic value to game ranches • Survey methods: a) detection rates along foot transects for direct sightings, track and scats[11] b)'capture' rates at remote photographic stations[12] (to ↑ chance of detecting species, ie. elusive carnivores) • Compare with parallel data collected from: adjacent livestock ranches & nearby Central Kalahari Game Reserve (CKGR) to determine game ranching's impact on local wildlife biodiversity relative to other land uses • Other data sources: a) Dept. of Wildlife wildlife population census data in CKGR b) interviews with ranch managers about nature and level of ranch management practices (i.e. control strategies for predators, bush clearing, fencing and veterinary care) and land-use history	• Interview key informants to determine if game ranching leads to increased community control over natural resources compared to other CBNRM ventures • Indicators of control: a) extent of legal rights over land & wildlife b) ability to self-determine hunting quotas c) stability of revenue • Conduct structured household surveys & key informant interviews with community participants in the game ranch on: a)perceived levels of control over natural resources b) willingness to invest in wildlife management c) actual levels of investment in wildlife management

Expected Results: 1) Game ranching's effects on species' populations vary depending on the species' economic value to the ranch 2) Community game ranches have increased level of control over natural resources, stimulating investment in wildlife management.

Significance: This research will contribute novel interdisciplinary knowledge that is meaningful to both Botswana and the broader field of conservation science. My study site is ideal because: 1) it encompasses a matrix of land-use types across a continuous landscape, enabling assessment of game ranching's impact on biodiversity with few confounding factors; 2) I am already familiar with Botswana's ecology, economics, and socio-politics and have good working relations with key stakeholders; and (3) game ranching is new in Botswana so my results can influence future policy. (*I certify this proposal represents my own work and ideas—ACG*)

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