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# FARM LEVEL FINANCIAL ANALYSIS OF THE WILDLIFE SECTOR IN SOUTH AFRICA

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## Abstract

*Despite recent statistics suggesting that the South African Wildlife industry is experiencing economic pressure coupled with a general financial upswing in the livestock sector; there is still an on-going switch from livestock to wildlife ranching making the wildlife sector the fastest growing agricultural sector in South Africa. Assuming that this switch is viewed as rational behaviour; can it be argued that the financial performance of the wildlife sector is still superior when compared with livestock? The study employs a profitability performance measurement in the form of Return on Investment to answer the research question. Primary data, collected by means of personal interviews among leading wildlife ranchers and farmers in the Northern Cape Province of South Africa was used for the required calculations. Results revealed that the economic pressure experienced by the industry is also visible in certain wildlife operations, specifically among wildlife harvesting and biltong hunting operations. Wildlife harvesting in particular yielded significant lower Returns on Investment compared to cattle farming. On the contrary, the financial performance of ranching operations such as a combination between biltong and trophy hunting as well as the breeding of plains and higher-value species for live sales proves to be superior when compared with cattle. Therefore, it is not reasonable to argue that despite economic pressure, the financial performance of wildlife is still superior to that of livestock. Moreover, it can be concluded that the continued switch from livestock to wildlife is only motivated by the financial performance of selected few wildlife operations in South Africa.*

*Key words: wildlife ranching; financial performance; return on investment*

## 1. Introduction

Until 1991, wildlife in South Africa was seen as part of nature (NAMC, 2006). It had no monetary value and the accepted wisdom was that in order for modern agriculture to prosper, wildlife should be exterminated because: (i) transmittable wildlife diseases threaten the health of livestock and, (ii) it competes with domestic livestock for grazing (Joubert 1977). Ironically, today the accepted belief is that wildlife's disease tolerance and ability to adapt and to be more efficient users of local vegetation (Dlamini and Fraser, 2010) contributes towards its competitive edge compared to domestic livestock in South Africa. The realisation of these benefits and the need to tap into them from a sustainable agriculture point of view has contributed towards the growth in the industry (Dlamini and Fraser, 2010).

However, the real transition from livestock to wildlife started in the early 1990s with conditional ownership of wildlife that was granted to private landowners. This resulted in a monetary value for wildlife and coupled with fundamental developments such as improvements in the techniques of translocation, capture and immobilisation; developments surrounding information flows, resilient market for the sale of live animals, hunting and tourism, core leadership etc., enabled farmers to fully exploit the economic and ecological benefits associated with wildlife ranching. On the back of this, the wildlife ranching sector is the fastest growing agricultural sector in South

Africa, expanding at between 5 and 20% annually, whereas the real farm incomes have declined by approximately 5.3% (Eloff, 2002; Dry, 2010a, b; Jenkins, 2011).

A similar trend is observed in terms of the number of farmers/ranchers. The total number of commercial farmers in South Africa declined from 60 000 in 1994 to 37 000 today (Mcgroarty and Chaykowski, 2012) whereas the number of wildlife ranchers has increased from 9 000 to approximately 15 000; including those that combined wildlife with livestock (Cousins et al. 2010). In other words, approximately 40.5% of all commercial farming activities in South Africa involved wildlife. This resulted in more than 20 million hectares of marginal agricultural land being transformed into thriving wildlife land use options (Dry, 2010b); with an estimated 18.6 million head of game roaming the said land (Du Toit, 2007).

With these growth rates as the barometer, it seems that the industry is prospering although recent statistics suggest that some spheres of the wildlife industry are experiencing economic pressure. These include the stagnation of prices of plains wildlife on wildlife auctions, the negative impact of the strong exchange rate on trophy hunting operations, and the amount of negative publicity on unethical and exploitive wildlife practices which have a negative impact on eco-tourism (Cloete, 2012). The afore-mentioned factors, coupled with the large capital outlays required for converting from livestock to wildlife ranching, reveal that the switch from livestock to wildlife ranching is in most cases not lucrative (Cloete et al. 2007). Nonetheless, there is still an on-going switch from livestock to wildlife ranching, motivated by the breeding of exotic and higher-value species fetching exceptional prices on the back of extraordinary investor confidence (Cloete, 2012).

As a result, continued growth in the sector despite indicators suggesting that the industry is experiencing economic pressure coupled with a general financial upswing (mainly in terms of output prices) in the livestock sector raise questions with regard to the financial performance of the wildlife sector. Is it reasonable to argue that despite some spheres being under economic pressure, its financial performance is still superior to that of livestock?

In order to answer the research question, the Northern Cape Province (NCP) of South Africa will be used as a case study region. Most parts of the province are semi-arid to arid with wildlife and livestock farming being the major agricultural activities. The following section elaborates on the approach and data used, followed by the results, discussion and finally concluding remarks.

## **2. Approach and data used**

The study employs a profitability measure to evaluate the performance of different wildlife and livestock activities. Return on investment (ROI) is arguably one of the most popular financial performance measurements (Andru and Botchkarev, 2011). Although ROI is widely considered a valid method to evaluate two or more investment opportunities against one another, it will be used in a slightly different context in this study, namely to gauge and compare the financial performance of different wildlife and livestock activities in order to determine whether wildlife is superior to livestock. Although different approaches to calculating ROI exist, the traditional ROI will be calculated. The difference between the traditional approach and others (i.e. extensions and virtualisation) is mainly the way in which profitability is calculated. For traditional ROI, profitability is calculated based on the actual income and cost of a specific investment (farming/ranching activity in this case) in a specific year, whereas the other forms make use of estimated income and costs (Andru and Botchkarev, 2011). In other words, the traditional ROI is much more accurate compared to the other two approaches. The traditional ROI can be calculated as follows:

$$\text{ROI [t]} = \frac{\sum_i \text{FinRet}(j) - \sum_j \text{Cost}(j)}{\sum_j \text{Cost}(j)} \times 100 \quad (1)$$

The approach requires that actual or precise accounting records (data) be used to calculate profitability of a specific enterprise. Therefore the data used in the study were obtained from leading wildlife ranchers in the NCP of South Africa. The data was gathered by means of personal interviews. Moreover, the ranching operations considered in the analysis comprise both consumptive and non-consumptive utilisation of wildlife with participants being selected based on their primary ranching/ farming focus. The participants include those that focused on game harvesting, biltong hunting, a combination of biltong- and trophy hunting as well as the breeding of wildlife (both plains and higher-value species) for live sales. Plains wildlife refer to species which are typically found in open plains or savannah habitats and include a great range of animals from the springbok to the very much larger kudu and eland (Wikipedia, 2012); whereas higher-value species refers to animals such as roan- and sable antelope as well as African savanna buffalo.

In order to compare the different ranching/ farming operations with each other, similar species compositions, capital outlays and land size were assumed. In other words, the data obtained from the leading wildlife ranchers was used to compile species-specific enterprise budgets for each respective ranching practice. For example, enterprise budgets for springbuck were compiled for utilisation by means of harvesting (meat), biltong, a combination between biltong and trophy hunting and the breeding for live sales. The data used for the compilation of species-specific enterprise budgets for each of the species included reflects the income and cost that prevailed in the market during the 2011/12 financial year. The profitability of the different practices was calculated by means of cash flow statements compiled from the species-specific enterprise budgets.

### 3. Results and discussion

#### 3.1. Species composition and assumptions

As mentioned, a similar species-composition was assumed for the different ranching operations in order to compare financial performances with one another (see Table 1). The data portrayed in Table 1 reflect the information obtained from various leading wildlife ranchers in the NCP of South Africa.

The species composition is typical of a so-called plains wildlife composition that can be ranched with on 2000 ha in the NCP. In order to remain sustainable, a utilisation rate equal to the population growth rate for each species was assumed. For example, a game harvesting operation will cull between 25 and 30% per annum, depending on the respective species. The same applies with regard to a combined operation (biltong and trophy hunting); with trophy hunting accounting for 12% of the income with the remaining 13 to 18%, depending on the species, being hunted for biltong. The latter also provided additional income in the form of day fees. Based on the data gathered, 180 hunting days per annum were assumed i.e. 60 hunters with the average hunting safari that lasts 3 days. The average day fees charged by ranchers in the NCP range between R250 and R1 875 per day, depending on the safari and animals to be hunted i.e. day fees for dangerous game (buffalo, lion, hippo etc.) is much higher compared to plains game species.

In addition, literature also alludes to the fact that several farmers are motivated to enter the wildlife sector based on the exceptional prices fetched by scarce or higher-value species. Thus, in addition to the plains wildlife operations, the study will also investigate the financial performance

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Table 1. Species composition and assumptions

Species	Number	Population growth (%)	Average weight (kg)	Average price		
				Meat	Biltong (per animal)	Trophy (1US\$/ R 7.5)
Springbuck	250	30	15	R 18/kg	R 450	R 2,625
Blesbuck	120	30	29		R 850	R 3,000
Impala	150	30	25		R 800	R 3,375
Gemsbuck	120	30	90		R 3,500	R 8,250
Blue Wildebeest	100	30	90		R 3,000	R 8,250
Kudu	60	25	81		R 2,500	R 11,250
Eland	20	25	225		R 4,500	R 16,500

of a wildlife ranching operation that focuses on the breeding and live sale of plains and higher-value wildlife. The main assumptions for this operation include:

- Based on the rate of recurrence of the various higher-value species among game ranchers in the NCP, only sable antelope will be considered part of the plains and higher-value species composition;
- Considering the required capital outlay and the average sable antelope breeding herd size; the number of animals will be restricted to 20% of the carrying capacity of the farm;
- A 80% weaning rate is assumed for sable antelope while the same population growth rate will account for the plains wildlife (see Table 1);
- 50/50 male- female offspring ratio for sable antelope with the entire offspring to be sold at the age of 18 months.

The livestock enterprise included in the analysis reflects a commercial weaner operation. With the average carrying capacity of 12 ha/LSU<sup>1</sup>, which is similar to the grazing capacity used to determine the optimal wildlife composition; the total cattle herd consists of 165 animals. The main assumptions include an 85% weaning rate with an average selling weight of 220 kg.

The following sub-section provides a detailed discussion on the financial performance of the different practices, taking into consideration the afore-mentioned data and assumptions.

### 3.2. Financial performance

Table 2 shows the ROI of the respective operations for the period under review. From the table it is clear that the majority of the 'plains wildlife ranching operations' yielded lower returns than a commercial weaner production system. The results are slightly different from those of other studies in the 1990s. For instance, Jansen et al. (1992), as cited by Child et al. (2012), report that most wildlife operations "are much more profitable with only 5% of livestock operations generating a return on capital in excess of 10% when profits were calculated using market (financial) prices". During this period, and even up to the mid-2000s, wildlife ranching yielded exceptional ROI on the back of continued output price increases with the demand for wildlife being driven by the restocking of farms previously used for conventional livestock farming. However, this trend peaked in 2004 after which new land for wildlife production became increasingly scarce. As the plains wildlife were by then fairly numerous, demand and subsequently prices started to

<sup>1</sup> Large Stock Unit (LSU) equal to live weight of 450kg

decline, and established ranchers increasingly began to produce higher-value species (Bothma, 2010, personal communication).

The results from the Jansen et al. (1992) study do not only highlight the change in competitiveness between wildlife operations and livestock; it is also an indication that time has changed for agriculture in general, especially in South Africa. Today, a 10% ROI in the agricultural sector seemed a bit 'far-fetched'. This is mainly due to the significant increase in land values coupled with input inflation that continues to outstrip output inflation i.e. cost price squeeze/ lower profits.

Nevertheless, the gross margin per hectare for a wildlife harvesting operation amounts to a mere R104 per ha or R208 089 for the entire operation on 2 000 ha. Considering the initial investment of R15,3 million (i.e. R14 million for the land and an additional R1.3 million for the wildlife); the ROI of 1.36% is the lowest for all operations included in the analysis. This is almost a third of the returns yielded by a cattle operation in the same region. The same accounts for a biltong hunting operation with an estimated ROI of 3.05% compared to the 3.19% for cattle.

The exception in the case of plains wildlife operations is the combination between biltong and trophy hunting (see Table 2). The significant higher ROI can be attributed to the significant higher prices received for the 12% of the animals hunted for their trophies coupled with the additional day fees (see Table 1). When compared with cattle, the ROI (6.35%) of a biltong/ trophy hunting operation is almost double that of cattle (3.19%).

A similar situation accounts for the combination between plains and higher-value species (see Table 2 above). With an income per hectare of R1 668 that equates to a ROI of 15.5%, ranching with a combination of plains and higher-value species is probably the most profitable farming enterprise in South Africa at the moment. The exceptional ROI (15.5%) could be attributed to the average auction prices of sable antelope as well as fundamental developments in the intensive breeding of these animals. The average price for young Sable bulls ranges between R23 451 and R34 035 with the auction price for heifers ranging between R188 519 and R277 945 during 2011/12 (Cloete, 2012). Moreover, improvements in terms of the breeding, health control, management etc. contributed towards ranchers achieving weaning rates in excess of 80 to 85%.

Table 2. Financial performance of the various operations

Operation	Land (2000 ha)	Animals	Investment	Income	Income/ ha	ROI (%)
Cattle	10,000,000	1,000,000	11,000,000	351,936	176	3.19
Game harvest	14,000,000	1,329,000	15,329,000	208,089	104	1.36
Biltong hunting	14,000,000	1,329,000	15,329,000	467,100	234	3.05
Biltong/ Trophy hunting	14,000,000	1,329,000	15,329,000	972,859	486	6.35
Game/ 20% Sable Antelope	14,000,000	7,439,000	21,439,000	3,355,191	1668	15.56

However, concerns have been raised with regard to the end game strategy and subsequently the sustainability of higher-value species in South Africa. Maud (2012) states:

*“When you keep on blowing up a balloon it will eventually explode. Throughout history there have been investment opportunities that have caught the imagination of the public and which, through greed and ingenuity, have caused prices to rise way beyond reasonable expectations. It is also usually the people who get drawn into the situation long after it has started that are left holding the remnants*

*of the balloon when it explodes. It is the insiders that get in early in the cycle who usually make the profits unless they, too, get carried away and greed takes over. This is a classical pyramid scheme”.*

He elaborates by arguing that “a simple basic law of economics dictates that the supply of these high-priced wildlife is soon going to exceed the demand”. This is especially true considering that the only well-established market for these animals is non-consumptive (live sales). Nevertheless, a combination of plains and higher-value species has yielded a far greater ROI compared to any other wildlife or livestock operation, at least for now.

#### 4. Conclusions

The results from the study provide value information not only to new entrants (farmers) that wish to convert from livestock to wildlife but also for established ranchers that want to expand their practices or those who want/ need to diversify in order to remain financially sustainable in the current economic environment.

It can be concluded that the economic pressure in some spheres of the wildlife industry is also evident in the financial performances of operations with results that indicated that consumptive utilisation of plains wildlife, especially in terms of harvesting and biltong hunting, is not yielding the desired financial returns. It is therefore not reasonable to argue that despite economic pressure, the financial performance of wildlife in general, is still superior to livestock. Moreover, it is clear that the continued switch from livestock to wildlife in South Africa is motivated by the financial performance of a selected few wildlife operations.

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