
Lessons from COVID-19 for wildlife ranching in a changing world

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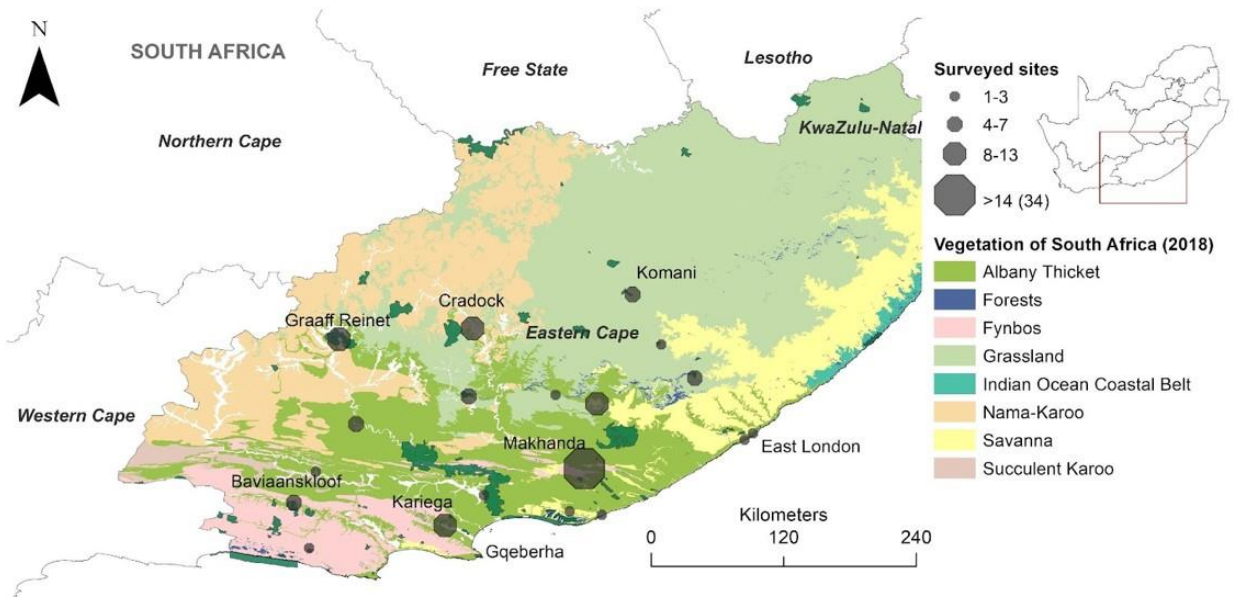


Figure S1. Surveyed study sites in the Eastern Cape, South Africa. Markers against each municipality are scaled by the number of properties surveyed in that municipality.

Table S1. Scores of seven wildlife ranch characteristics on the first two principal components (PC).

Characteristic	PC1	PC2
% Foreign visitors	-1.32	0.78
% Revenue from:		
Ecotourism	0.94	1.43
Biltong hunting	0.32	-1.10
Trophy hunting	-1.61	-0.25
Venison	-0.32	-0.63
Wildlife breeding	-0.60	-0.12
Agriculture (livestock and cultivation)	0.93	-0.67

Supplementary Material 2: Relevant Survey Questions

Section 7 of the Sustainable Wildlife Economies Project (SWEP) Survey with questions relevant to this paper. The sub-section on “adaptation” is most relevant. The Research Assistants worked in teams – one team member was a narrator (with a script) and one was a scribe (with the answer sheet). The questions and tables below represent a combination of the script and answer sheets provided to the research assistants.

Q7 – Economic activities

In this final section, we will be discussing what economic activities you undertake and the number of jobs you create. We’ll also be asking about how COVID has impacted your business and how wildlife ranching can become more resilient in future.

1. *Is the overall enterprise financially self-sustaining?*

Put another way – are the revenues from the economic activities enough to cover the operating costs?

2. *If not, how is it sustained?*

Note – they might answer that the owner covers the losses from other businesses or something, or that they have multiple properties under the same enterprise, or that being part of a conservancy to share management costs helps.

3. *Have you invested in any infrastructure related to the wildlife economy, such as a meat-processing facility, tannery, taxidermy studio, hunting schools?*

I’m now going to ask about specific revenue activities on this property.

Show them the table of economic activities, they can fill it in themselves.

General activity	Specific activity	4.Present?	5. Proportion (%) of revenue	6. Long-term viability of activity (1=low, 5=high) and why?
Game and wildlife	Breeding and selling of breeding stock	<input type="checkbox"/>		
Game and wildlife	Trophy hunting	<input type="checkbox"/>		
Game and wildlife	Trophy hunting - outfitter	<input type="checkbox"/>		
Game and wildlife	Biltong hunting	<input type="checkbox"/>		
Game and wildlife	Venison	<input type="checkbox"/>		
Livestock (Stud and commercial)	Sheep	<input type="checkbox"/>		
Livestock (Stud and commercial)	Cattle	<input type="checkbox"/>		
Livestock (Stud and commercial)	Goat	<input type="checkbox"/>		
Livestock (Stud and commercial)	Dairy	<input type="checkbox"/>		
Cultivation	Cash crops rainfed	<input type="checkbox"/>		
Cultivation	cash crops irrigation	<input type="checkbox"/>		
Cultivation	Fodder production	<input type="checkbox"/>		
Cultivation	Nursery	<input type="checkbox"/>		
Eco-tourism	Day visitors	<input type="checkbox"/>		
Eco-tourism	Overnight visitors	<input type="checkbox"/>		
Events (weddings etc.)		<input type="checkbox"/>		
Leasing of land to another farmer (e.g. grazing)		<input type="checkbox"/>		
Other or alternative sources of revenue (Please specify)		<input type="checkbox"/>		

4. Please indicate all activities that directly generate revenues for this enterprise, and note any additional activities that aren't listed in the table.

Note – let the landowner respond verbatim and then prompt if necessary.

5. What is the relative proportion of each activity to the enterprise's total revenue?

Note – for the 'other sources of revenue' please specifically ensure that if the landowner mentioned value-adding facilities or processes, such as on-site abattoirs, these contributions towards revenue are included.

6. Please rank each listed economic activity according to how you perceive its likely long-term viability, where 1 = very low viability and 5 = very high level of viability.

Here they may mention things like increasing lobbying against hunting, or persistent drought, that influence the viability of certain activities.

For properties that generate revenues through visitors – either hunters or ecotourists – ask the question below. Otherwise leave it out.

7. What proportion of your visitors are foreign?

Employment

Now we are going to ask you about how many people you employ on this property, and any benefits they may receive.

8. Please could you complete this table, indicating how many permanent and temporary employees you have.

Monthly salary category	Number employed	Number of women	Type of non-salary benefits
<R3,500 (Permanent)			
R3,500- R5,000 (Permanent)			
R5,000- R10,000 (Permanent)			
>10,000 (Permanent)			
<R3,500 (Temporary)			
R3,500- R5,000 (Temporary)			
R5,000- R10,000 (Temporary)			
>10,000 (Temporary)			

9. How many of these are women?

Note – if you are speaking to the manager (not the owner), remind them to include themselves in this count.

10. Are there any non-salary benefits, such as game meat rations, upskilling programmes, community services etc. for any of these employees?

Adaptation strategies

In this final section, we are going to ask about how the pandemic has impacted your enterprise and how you have adapted.

11. How severely was your total enterprise revenue for the 2020-2021 financial year impacted by the pandemic? (read the categories below).

Increased
Less than 10% loss
Between 10 and 25% loss
Between 25 and 50% loss
Between 50 and 75% loss
Between 75 and 100% loss

- 12. *If you conduct more than one revenue generating activity on your property, were some impacted more than others? Please elaborate.***
- 13. *How else was your enterprise affected by the pandemic?***
- 14. *What were your key strategies to cope with the effects of the pandemic?***
- 15. *Is there anything that particularly worries you for the sustainability of your enterprise over the next 10 years?***
- 16. *Are you undertaking any actions to prepare for or to mitigate these risks?***