

ERSA Research Brief

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Climate change and Agriculture: What is the Role of Wildlife in adaptation in South Africa?

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Climate change poses a serious problem to agriculture sector especially livestock farming in South Africa. There is evidence based on climate models' predictions that a +2.50 C to + 50 C temperature increase over the current level is likely to wipe out cattle or beef farms and shrink drastically sheep farms in the Southern Africa region. Beyond livestock, very few but expensive adaptation options exist in the arid and semi-arid areas. This is however changing as more farmers embrace wildlife ranching as an alternative adaptation option.

Increasingly, wildlife in Southern Africa is playing a significant role not initially anticipated but uniquely aligning itself as an important subsector under agriculture. This role played by wildlife though not conspicuously recognized under the agricultural sector, is growing with changing climate. In order for the role of wildlife ranching to be recognized and appreciated alongside agriculture and wildlife conservation, it is important to empirically understand how it performs under the current climate conditions when compared to livestock farms. This paper investigated the role of wildlife ranching as an adaptation option, looking at the environmental, economic and social factors that motivate livestock farmers into wildlife land use decisions.

We find that agriculture especially livestock production is strongly correlated to wildlife ranching. For example commercial livestock farmers with larger land and asset base are more likely to experiment with mixed livestock-wildlife ranching with a possibility of completely moving to wildlife ranching. From our comparative analysis, mixed-ranches are less vulnerable to climate change when compared to livestock and specialized wildlife ranches. A 10 C increase in temperature over the current level raises the probability of mixed ranches being chosen by about 3.92% while it leads to a 5.2% decline in the probability of livestock farms being chosen. We however note that revenues from specialized wildlife farms are on average higher than those from mixed ranchers or livestock ranches given the current climate scenario. Regardless, we see that farms with higher turnover are less likely to be bothered by climate change, at least in the short term.

With rising temperatures and decreasing rainfall towards 2100, we found that most livestock farms in Eastern Cape and Limpopo Provinces are likely to transit to either mixed or specialized wildlife ranching. More than 74% of livestock farms are likely to move to wildlife if the current trend is to continue while holding other factors constant. By 2050, about 12.5% of livestock farms and 7.2% of mixed farms are likely to move to specialized wildlife ranching.

Despite these findings, we are also aware that public protected areas face conservation

challenges that limit their expansion and climate change is already driving several species of wildlife to extinction in such Parks as Kruger National park. Ex-situ and matrix conservation approaches are seriously being considered as alternative avenues of conservation. Economic incentives have already led landowners in arid and semi-arid areas to use their land for non-agricultural activities such as ecotourism, breeding or hunting since they provide better returns. However, a much more structured integration of wildlife ranching and agriculture may go a long way in streamlining the sector and addressing pervasive issues that could hinder its growth. Currently not all provinces in South Africa have a game ranching strategy which implies that wildlife ranching at the provincial level is largely governed by multiple policies. Livestock farmers and communities are likely to shift land use as climate changes, it is important to acknowledge that though the costs involved in running a ranch is high, this will not stop communities from moving into wildlife ranching or selling off their parcel of land to wildlife ranchers.