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Amboseli Conservation Bulletin

Post-Drought Perceptions of Herders on Livestock Production in the Amboseli Ecosystem: Impacts, Coping Strategies, and Future Sustainability

Introduction

Rangeland ecosystems face enormous biophysical, sociocultural and economic changes at an unprecedented rate. Frequent droughts are disrupting the lives of herders, leaving them destitute and unable to cope with the changing times. The Amboseli ecosystem illustrates the many changes affecting herders and their livelihoods. The hardships call for monitoring and identifying the losses, coping mechanisms and best practices in order to build drought resilience.

We have conducted a comprehensive survey to detail the perceived causes, impacts, and responses to the 2022-2023 drought relative to earlier droughts. A well-informed management strategy depends on a clear understanding of the pastoral production systems and coping strategies. The survey by the Amboseli Conservation Program (ACP) was conducted by Sakimba Kimiti and the ACC Resource Assessors (RAs) across the Amboseli ecosystem. The survey was designed to assess livestock losses, social disruption, management strategies, best practices, and pointers to the future sustainability of open rangelands.

The survey findings give valuable pointers to stakeholders in Amboseli to better ecosystem planning and management, and ways to improve drought resilience in the pastoral lands.

Data collection

The survey used a Google Form with an automated questionnaire to ease information collection and sharing. The open-source tool made for efficient data collection and allowed for inputs outside the ACP ecological monitoring region. The questionnaire gathered data on livestock losses, social disruptions, management strategies, and herder outlooks on the future of the open rangelands and livestock production. A link to the questionnaire was randomly shared among respondents with the assistance of the RAs. The remote data collection method enabled immediate acquisition and tabulation of data, and a rapid analysis of results. The geographic scope, constrained by the availability of Resource Assessors, resulted in some underrepresentation of some areas in the Amboseli ecosystem.

Results

Socioeconomic characteristics of the respondents

The two weeks' survey interviewed 305 individuals from the group ranches surrounding Amboseli National Park. The respondents included 44% from Orgulului, 27% from Kimana, 17% from Eselenkei, and 12% from Mbirikani. Most respondents (65%) still had extensive livestock holdings as their main livelihood, some combined livestock and crop production (24%), and others informal (beadworks, herding labour) (5%) and formal employment in county and national government (5%), and crop farming (1%). The respondents' gender was 74% male and 26% female. Age categories ranged between 31 to 45 (40%), and 46 to 55 years (25%). A sizeable percentage (37%) lacked formal education, 17% attained primary level, 13% secondary, and 26% university or college education.

Perceived impact of the 2022-2023 drought on society and economy

In the herder's view of the severity of 2022-2023 drought in Amboseli, the majority (76%) saw the drought as severe, 18% as moderate and 6% as mild. The nature and severity of the drought made it difficult to access adequate grazing land for their herds. Half the respondents had to lease grazing lands at some point to spare their herds, and half accessed grazing lands through kinship and reciprocal ties. Figure 1 shows the livestock losses across the ecosystem.

George Sunte conducting the survey to understand perceptions on livestock losses and coping strategies

Paul Kasaine administering the post drought survey interviews in Mbirikani group ranch

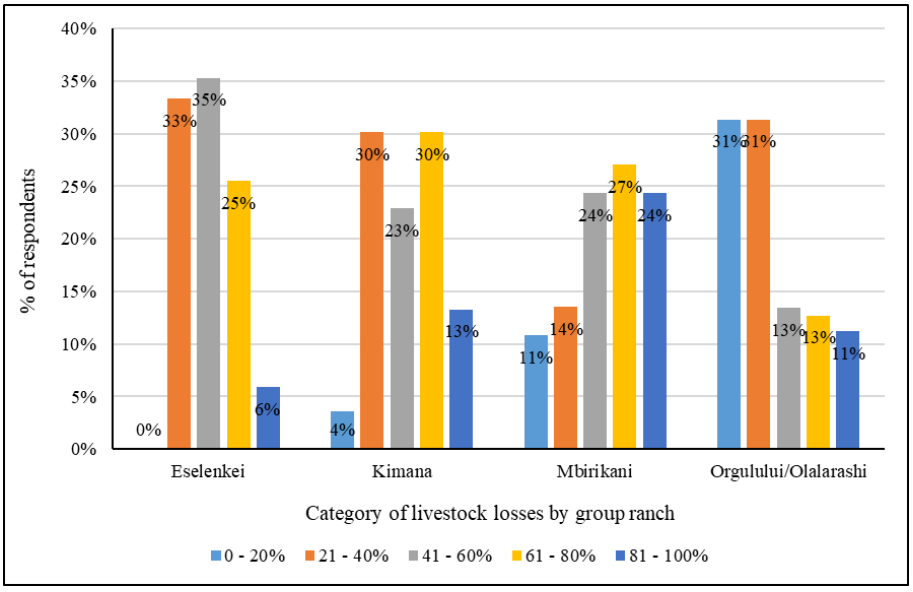

Figure 1: The distribution of livestock losses by respondents across group ranches within the Amboseli ecosystem during 2022-23 drought. The majority of losses ranged between 21% and 80% with an average of 40%.

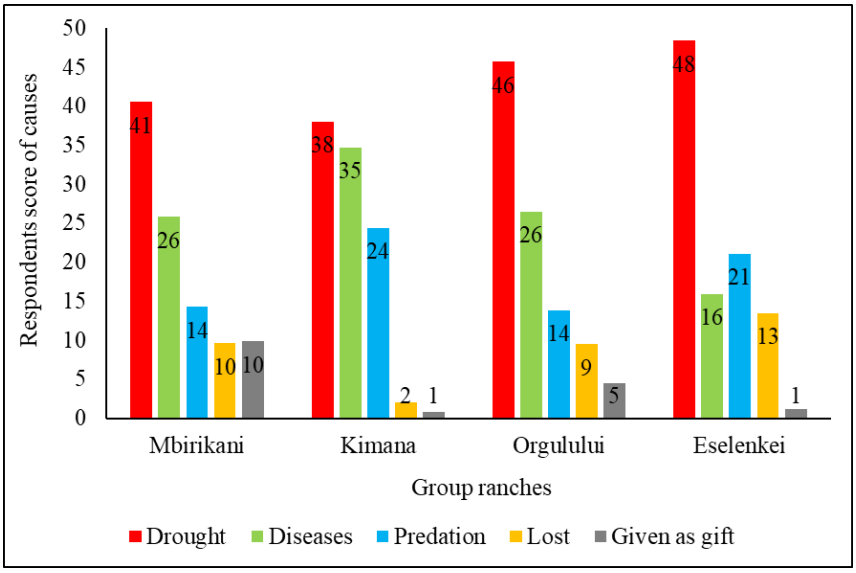

Figure 2: The causes of livestock losses by group ranch. Drought accounted for the biggest losses, followed by disease, predation and gifting animals. The highest overall losses were in Kimana, the least in Mbirikani and Eselenkei.

Herder views on the causes of drought

Herders were asked about their views on rainfall patterns over the last 5 years and during the drought. A majority (63%) of the respondents reported poor rains in their area, and 37% felt the rains leading into the drought were sufficient. The majority (94%) reported poor rains reducing the amount and area of pasture coverage, with only 6% not reporting any change. The majority of herders by far (73%) reported a poor recovery of pastures after the long rains in March to May, only 27% a good recovery. In the survey, 49% of the respondents reported the recent rains to be insufficient to support their herds until the next season, 27% thought the rains sufficient, and 25% were unsure one way or the other.

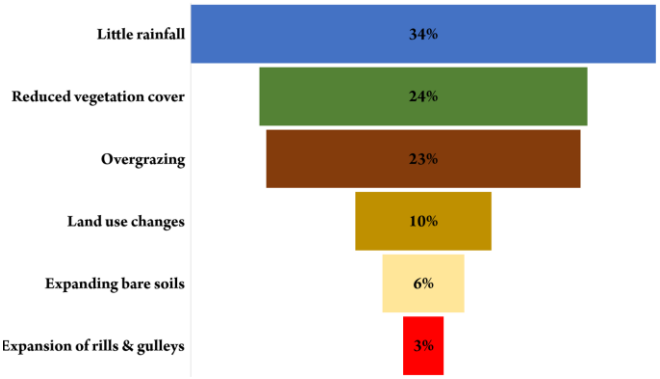

Figure 3: Herder views on the reasons for the poor recovery of vegetation after the drought. Many attributed the lack of recovery to insufficient rain (34%), but others saw poor grass cover (24%) and overgrazing (23%), land use changes (10%), and soil erosion (9%) as the reason.

Herder-livestock-wildlife interactions

Most respondents (84%) reported conflict with wildlife to have increased in recent years, with only 6% reporting no conflict. The conflict was attributed to herders grazing their animals in the national park and competition for scarce forage.

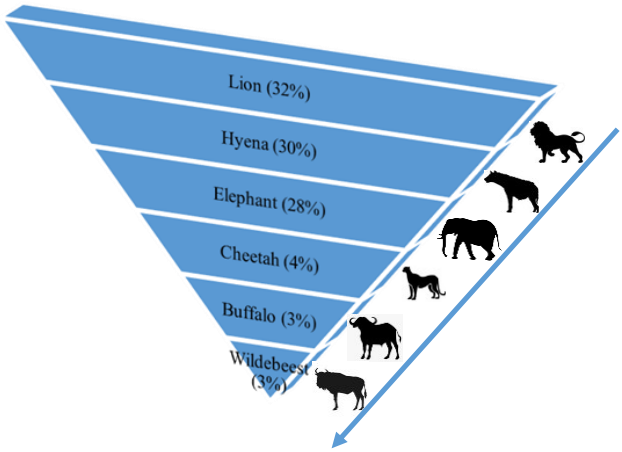

Figure 4: Levels of conflicts reported by herders. Lions (32%), hyenas (30%) and elephants (28%) were seen as the main cause of conflict. Cheetah, buffaloes and wildebeest caused relative minor conflict.

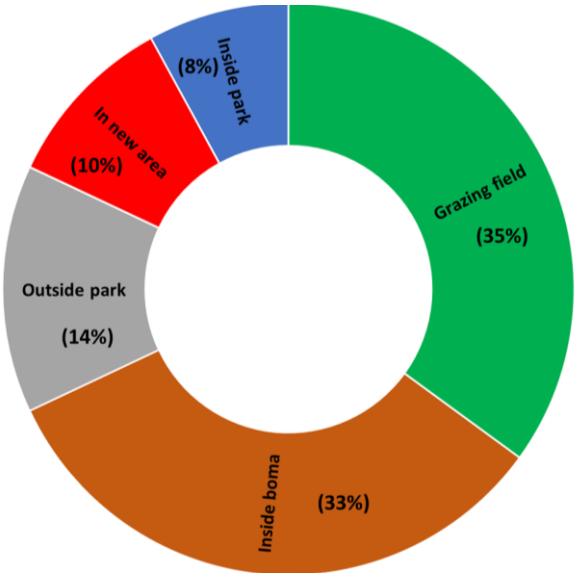

Figure 5: Location of predation occurrences in the Amboseli ecosystem. Most occurred on grazing pastures (35%) and inside homesteads (33%), with attacks inside the park accounting for 8%, outside 14%, and on new grazing areas (10%).

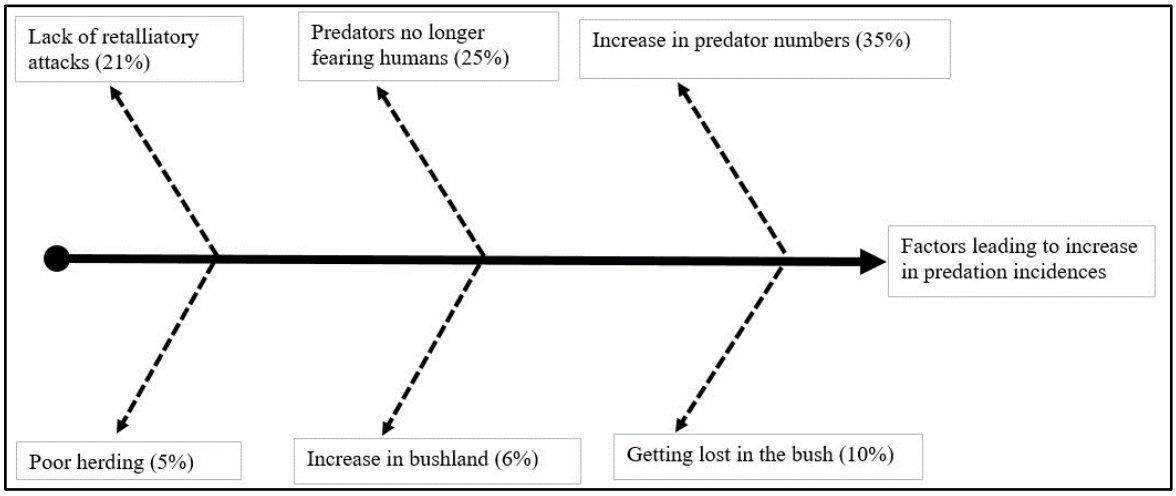

Figure 6: Factors elevating predation include predator numbers (35%), lack of fear of humans (25%), lack of retaliatory attacks by humans (21%), and less so, poor herding skills (5%), increase in bushland (6%), and livestock getting lost (10%).

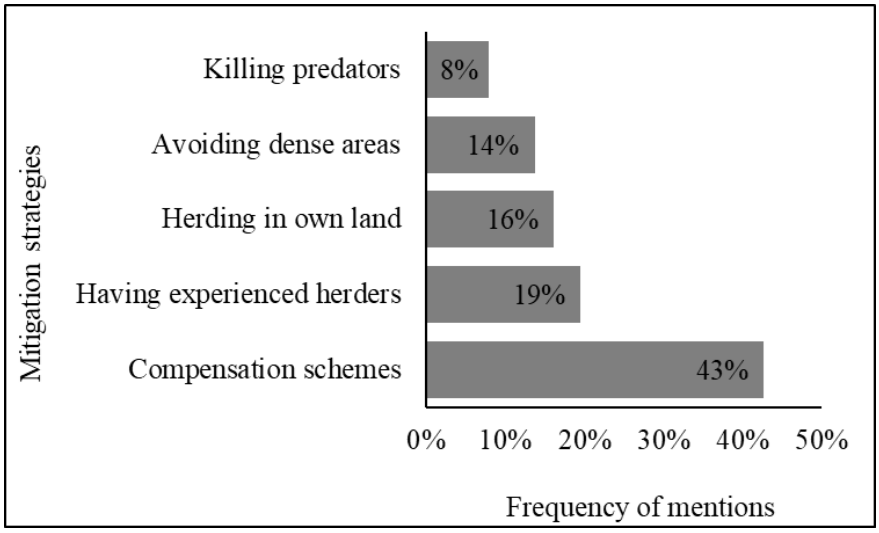

Figure 7: Strategies herders used to combat and offset livestock losses to predators. Compensation schemes (43%) were seen as important in offsetting losses. Experienced herders (19%) came a distant second, along with private land ownership (16%), avoiding dense bush (14%) and killing predators (8%).

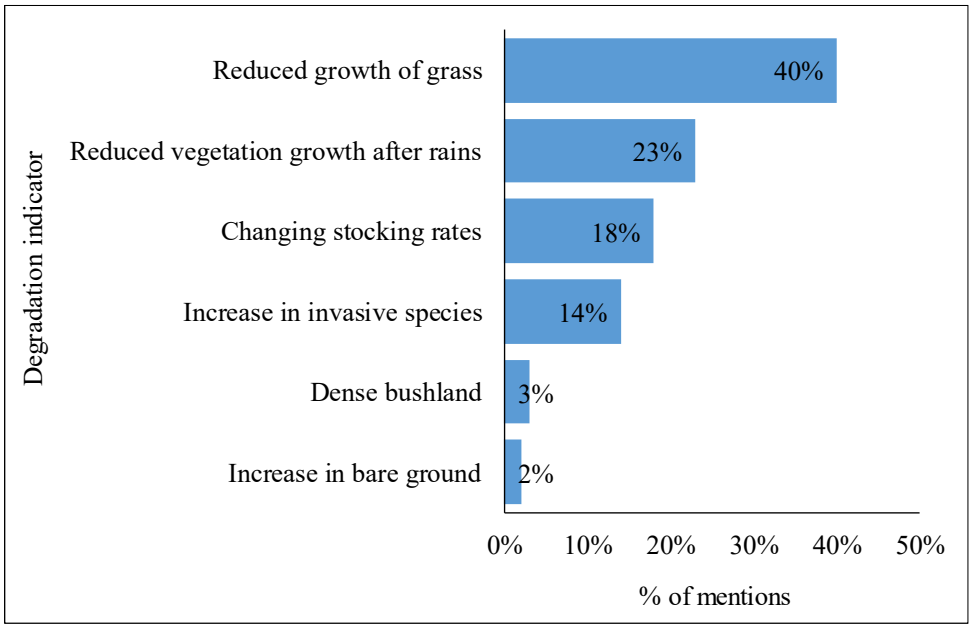

Figure 8: Respondents identified several indicators of land degradation. These include a significant decrease in grass cover (40%), inadequate regrowth of vegetation during rainy seasons (23%), and changes in stocking rates. A notable decline in the animal population also serves as an indicator of reduced range productivity. This decline in population points to the fact that the land is no longer able to sustain the large herds that were previously supported, as reported by respondents. In the surveys, 95% of respondents reported land degradation in their area.

Drought coping strategies

The increasing frequency and intensity of drought documented in ACP reports over the years calls for new ways of managing herds and the rangelands, as well as tried and tested customary communal practices. The post-drought survey shows herders adopting mitigation measures not previously practiced. Local organizations also assisted herders to cope with the impact of drought through relief programs.

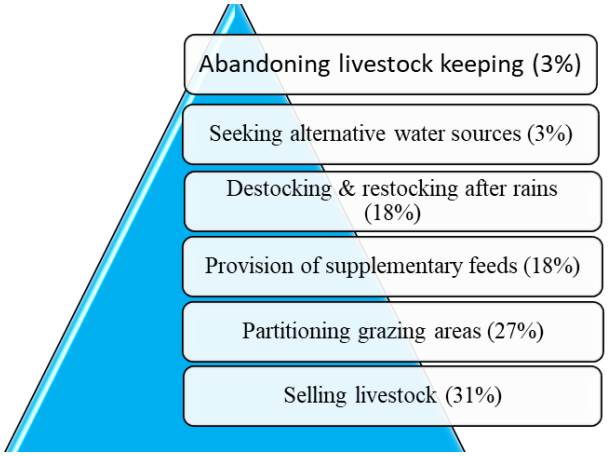

Figure 9: The mitigation measures herders used to combat the 2022-2023 drought included selling animals (31%), partitioning grazing lands (27%) and supplementary feeding. Few herders are ready to abandon livestock keeping (3%).

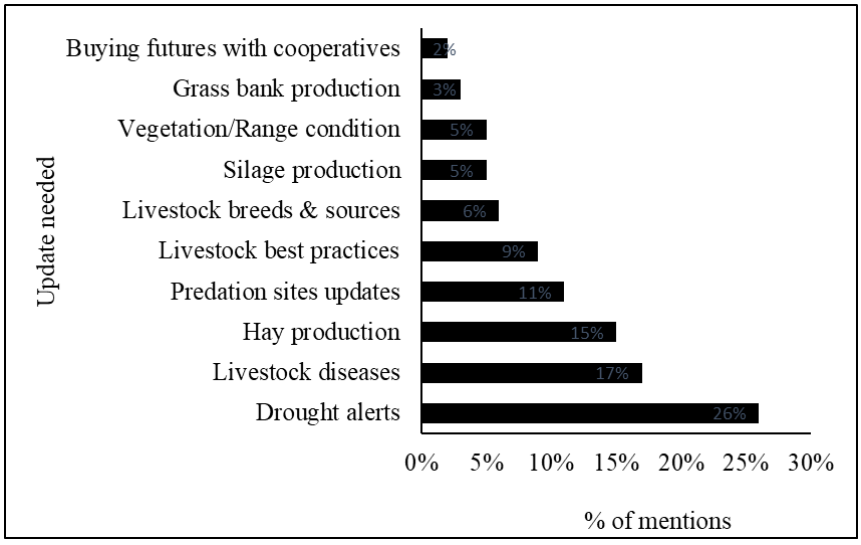

Figure 10: In terms of information needs to ward off extreme droughts, informants saw drought (26%) and disease alerts (17%) as the most important, followed by information on hay production (15%), predator locations, best livestock practices and other information needed anticipate and lower drought vulnerability.

Herders are slowly shifting from keeping Maasai sheep to doppers which fetch much higher prices. Sheep dominate herds due to a decline in tree cover and their ability to feed on coarser forage compared to goats

A steer well fed and managed costing approximately Ksh 250,000 can restock 7 to 10 heifers/cows at 25,000 following mass livestock death. Steers are considered a moving bank and key asset for the family

A young breeding bull bought at Ksh 250,000 and originating from Pakistan. Herders are pooling together to import breeding animals such as Abraham from South Africa, and simmental or fleckview from the West. The herders are slowly changing their herds from many indigenous cattle to fewer improved breeds with high production

A new way of moving livestock by train caravan which helps conserve energy and prevent further losses during migration

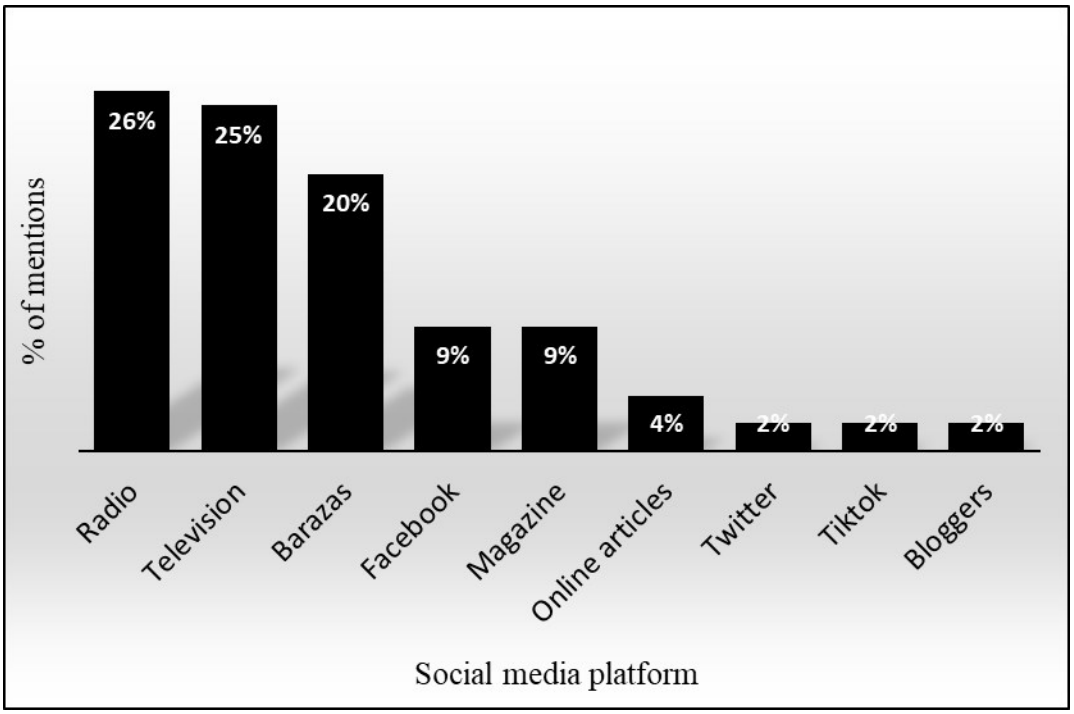

Figure 11: Social media platforms where respondents access updates on livestock production and range management. Most information is received from radio, television and public barazas (*enkiguana*) concerning their day-to-day activities. Tiktok, Twitter and blogging are still new media outlets for transmitting information.

The future of rangelands and livestock production

Herders' views on the future of the open rangelands and extensive livestock production vary greatly. From the survey, 38% of the respondents termed the livestock production system to be challenging but adaptable, 35% as uncertain and at risk, 27% noted it as sustainable and promising, and only 1% saw no future moving forward. Most herders still see livestock in their future despite the enormous challenges.

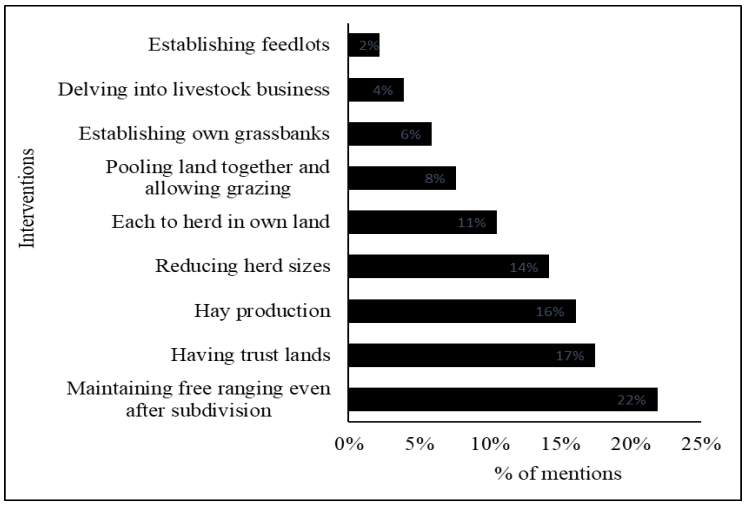

Figure 12: Responses herders see as the best way to secure a better future for livestock production range from keeping the rangelands open after subdivision (22%), use of lands held in common trust, including national parks (17%), hay production (17%), and reducing herd sizes (16%). Herding on one's own land, pooling land for collective use, and private grass banking also feature, though less so. The results point to herders seeing a combination of ways to reduce drought vulnerability by maintaining open grazing lands, late season grass banks, producing or buying in hay, and having smaller more productive herds.

Conclusions

The post-drought survey conducted by the Amboseli Resource Assessors provided valuable insights into the impacts of the recent drought on livestock production in the Amboseli ecosystem. The findings shed light on livestock losses, social disruption, management strategies, and herders' perceptions of the future of open rangelands and livestock production. The survey gives feedback to herders and stakeholders in the rangelands about the levels of livestock loss in the 2022-2023 drought, and methods herders see as ways to combat future droughts and raise herd production. The large-scale movement to avoid the most extreme droughts, supplementary feeding and selling livestock proved important in keeping mortality in the 2022-2023 to nearly half that of the 2009 drought.

Routine monitoring and assessment of rangeland conditions before, during and after drought periods, and climate extremes, are essential in understanding the local challenges.

Comments on the post-drought report on perceptions of Amboseli herders

By David Western

Sakimba Kimiti, Samuel Lekanaiya, Paul Kasaine and Sunte Kimiti's report on herder views of the 2022-2023 drought shows a marked shift in pastoral responses from earlier droughts, and greater survival of livestock as a result. Whereas in the 2009 drought over 70 percent of cattle and 60 percent of sheep and goats died, herders in the 2022-2023 drought used a mix of customary and innovative practices to reduce cattle losses to 40 percent or so. This is not to say the losses weren't devastating. Many families lost most of their cattle, and all families suffered severe economic losses and social disruption.

The 2022-2023 drought would likely have taken as grave a toll on livestock as the 2009 drought had herders not taken precautionary measures. The most important were reciprocal arrangements and leasing fees which enabled herders to move to better pastures in the South Rift, Narok and farmlands in Ukambani when their animals were starving. Such large-scale movements in search of pasture have traditionally buffered pastoralist from local droughts.

That said, the scale of movements now taking place across and beyond southern Kenya is far greater than any in the past, testifying to the intense pressure on pastures and dwindling dry season reserves. The large-scale movements pose a new challenge to communities which have established grazing schemes and grass banks to see their animals through droughts—an issue which needs to be addressed by the Southern Rangeland Coalition.

No less important in reducing 2022-2023 drought losses was the purchase of hay from farming areas as far off as Eldoret, and supplementary feeding of livestock. Coupled with the widespread movement in search of pasture, this meant cattle no longer depended entirely on the Amboseli grasslands for their survival. The report makes clear that herders look to hay purchases, grass banks and supplementary feeding as a way to combat future droughts.

Yet another shift in practices seen in the 2022-2023 drought was herders looking to fewer more productive animals to sell at far higher prices than traditional zebu stock.

These and other notable shifts in response to drought saw far lower losses than in the 2009 drought, and suggest successful practices for improving livestock production and family income in the southern rangelands.

Disease also caused significant cattle losses, mostly when herds were moved to unfamiliar areas. The poor condition of livestock due to emaciation would have greatly increased their vulnerability to disease. Predation was another cause of significant livestock losses. Drought stress, close contact with predators in the restricted late season pastures and straying animals contributed to the increased conflict.

The drought would have been considerably worse had ACP's early warnings not been issued early in 2022. The report makes clear that herders wish to get whole range of early warnings on pasture outlook, diseases and predator risks, timely information on hay sources, market prices and the like, and feedback on practices for improving drought savvy, preparedness and responses.

ACP, working through the Livestock Division of the Amboseli Ecosystem Trust, will use the report to step up the provision and dissemination of such information.

The biggest shift I see in the herder perceptions of the 2022-2023 drought are the reasons they attribute to the growing intensity and frequency of pasture shortages recorded by ACP over the past few decades. Most herders considered the long-rains were too poor for pasture recovery, but on the other hand noted grasses are now recovering poorly even after rains due to lack of grass cover, stocking rates and other factors.

The growing awareness of the declining productivity of the rangelands is a marked change from earlier droughts when poor rains alone were seen as the cause. Herders in particular see subdivision and the loss of the open rangelands and herd movements as a worrying trend likely to add to pasture loss and access.

The key message the report delivers from the herders themselves is the need for better and timely information on drought outlooks, alerts on deleterious trends, and traditional and new livestock practices which buffer their herds from the heavy losses and improved production, all of which add to a family's income and security.

The report should give the Amboseli Ecosystem Trust and Southern Rangelands Coalition sufficient feedback to begin promoting and scaling up the remedies to crippling droughts suggested by pastoral communities.

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