

SUSTAINED RANGELAND IMPROVEMENT WITH SPECIAL REFERENCE TO THE LAIKIPIA CONTROVERSIES.

By Chris Field, PhD

Consultant in ASALs and Wildlife

P.O. Box 24208, Karen, Nairobi, 00502

Introduction.

I have spent over fifty years working in East African Rangelands studying wildlife in National Parks and ranches or helping pastoralists in northern Kenya and consulting in Tanzania. The situation has changed unpredictably and dramatically since my original research in the Queen Elizabeth National Park in western Uganda. The main change has been rapid and near exponential human population growth with accompanying degradation of the rangelands especially those classified as ASALs (Arid or Semi-Arid Lands). It is not unique to the Greater Horn of Africa, but an example of what has been happening in most countries in Sahelian Africa. A world's leading expert on deserts concluded over 25 years ago that "all the areas between the 100mm and 300mm isohyets will become man-made deserts in the next 35-70 years if the present trend is not reversed!" (Le Houerou, 1991). Further exacerbating the effects of unchecked population growth is that of global warming, where pastoralists are the victims of the rapid increase in the use of fossil fuels by the world's increased human population.

From my experience, the last great drought in the Horn of Africa was in 1984 which, together with political mismanagement, led to the deaths of uncounted numbers of our neighbors in Ethiopia (Kaplan, 2003). This was before the impact of global warming was felt, indicating that drought is a cyclical phenomenon which is best countered by concerted action against all the possible causes. Indeed, for some time drought has been regarded as a way of life by many pastoralists.

The results of ten years of research and experimentation on desert encroachment by ten experts and 30 consultants were summarized thirty five years ago in a comprehensive Management Plan for Western Marsabit District (Slide1) (UNESCO/IPAL, 1983, Field, 1986). Regrettably, the Project never entered the practical management phase after it was handed over to the Kenya Agricultural Research Institute (KARI), now the Kenya Agriculture and Livestock Research Organization (KALRO). Neither has undertaken serious rangeland management, as outlined by the IPAL, and they appear to prefer degree driven research rather than demand driven management.

Meanwhile, serious controversies have been smoldering in the Laikipia rangelands of Kenya since 2013 and the current drought has brought them to a critical climax. Reflection on the problem, its causes and possible solutions, is appropriate in the light of past experiences.

From about 1990 to 2015, I conducted research in the Laikipia rangelands on > 200 camels under my care, and other livestock, principally cattle owned by ranchers and the Agricultural Development Corporation. Furthermore, I have been involved with Samburu and other pastoralists, among whom I worked since 1976, and so have had a long term interest in the general area for over 40 years.

The Problem.

Below average rainfall has occurred in Kenya since 2016. Much of Kenya's rangelands north of the equator are classified as ASALs and were affected by the dry conditions, which was declared a drought after the failure of the April rains in 2017 (Slide1: the Area)

Around this time there was a large-scale immigration to Laikipia by pastoralists with their cattle, sheep and goats from Isiolo, Samburu and Baringo counties. There was no mention of camels accompanying them and it seems camels still had feed in their normal range. This is an important point as camels are well known to be able to survive drought conditions much better than most other livestock.

Nevertheless, reports of some dying in their traditional range further north were received. This is not altogether surprising as many old animals approaching their age limit tend to die during sub-optimal pasture conditions.

At first the immigration of livestock to Laikipia was not unusual as it had happened before during droughts. However, it had been customary for pastoralists to ask permission from the land owners, who might charge a token fee, and would certainly expect them to leave once widespread rain fell.

Last year the situation was different, the pastoralists not only grazed freely without first seeking permission, but were armed and resisted eviction. This involved killing one rancher, wounding another and, over a period of seven months, killing 22 people of whom eight were police and wounding 38 others (Daily Nation, 13.11.2017). They also burnt down lodges and other ranch property and killed much wildlife on Conservancies, including elephants (Swara, April 2017). They were heavily armed with modern weapons.

Eventually, seven months after the April invasion, it appears that some of the pastoralists left in the direction of their home counties. Latest information (February 2018), is that the rain of October and November 2017 was patchy in the ASALs and drought conditions have resumed, especially in Wajir county, and some of the pastoralists remain on Laikipia ranches.

Possible causes of these events and motivation to defy the law.

Apart from the drought situation and the ranch pasture, which is usually better managed than the rangelands where the pastoralists normally live, there appear to be a number of factors leading to this crisis. The most important are as follows:

1. Historical claim to the land. When the first European settlers came, the Laikipiak had been defeated by the Purko Maasai and the remnants of their clan absorbed by their conquerors or become stockless hunter gatherers, or Ndorobo. This left some land idle and the remaining few Maasai agreed to be moved south to the Loita with the exception of some Ndorobo, such as the Mukogodo, in the vicinity of Dol Dol (Spencer,1973). The settlers bought ranches on a 99 year lease which, in some cases, have expired and been renewed with the Kenya Government.
2. Recently, opportunity arose for pastoralists also to acquire leases on some of the land. Furthermore, it is believed that some local politicians encouraged this by offering to help in the

negotiations in exchange for support in the National elections which occurred last August. It has even been suggested that certain politicians supplied some of the weapons used by the pastoralists.

3. Other factors in the equation include the rapidly increasing population of pastoralists in northern Kenya with parallel increases of livestock necessary for their support. The higher stock density means that whenever there is below average rainfall the animals exhaust their grazing more rapidly than before. For example, in the El Barta plains of Samburu County, overgrazing has led to the dominance of an unpalatable dwarf shrub *Duosperma eremophilum*, where previously there had been good grazing.
4. Reports have come that in Samburu, water points were a long distance from adequate grazing for conventional stock. This was a key observation in my studies in the 1984 drought and subsequent droughts. Cattle and small stock cannot move far from permanent water (wells, boreholes etc.), usually no further than a radius of 8km or 5 miles, before returning to quench their thirst. Also, our grazing trials in the semi-desert of the Rendille *hedad* showed that goats destroy as much forage by trampling to and from water as they eat.
5. Samburu stockowners living in the dry part of their county adjacent to Marsabit noted that camels are not affected in that way as they drink much less frequently, which gives them time to reach untouched vegetation far from permanent water. Following each serious drought it was noticed that Samburu pastoralists purchased camels from their neighbors, the Rendille. However, camel keeping involves different skills to herding cattle. The solution was to marry an experienced Rendille wife to look after their camels. Eventually a clan of the Rendille comprising mixed Samburu and Rendille, called the Ariaal, was created and live along the interface between the two Counties. During drought they use the better vegetation in Samburu County, while during rains they concentrate on saline pastures in the Rendille semi desert (Spencer, 1973).
6. The tribes from Baringo are mostly East Pokot and Tugen who are of Kalenjin origin and well armed, being fearless after decades of conflict with their neighbors the Turkana. Those from Isiolo include the Ewaso Boran, Somali and Rendille. The long western arm of Isiolo County, which was a major quarantine area for livestock being brought from northern Kenya for sale, can contain animals from any of these tribes. (In the 1980s I moved some of my research cattle to market on foot from Mount Kulal near Lake Turkana to Isiolo, as part of a trader's herd. The market was flooded with livestock and the cattle were held in the LMD Holding Ground for six months before they could fetch a reasonable price, but still the Trader Hassan Turkana, who was the Chairman of the Council of Marsabit, made a profit).
7. It has been noted that the current warrior age sets, who are much involved in the invasions, have grievances arising from being educated and qualified, but lacking employment opportunities. Inter ethnic raiding, which was traditional, has now taken on a new and dangerous dimension.

Recommended Solutions to these problems.

What can be done to solve this perennial problem which has now become acute?

Solutions should involve the Government (both Central and County), together with the UN and NGOs, investing considerable resources in a multi-faceted approach with emphasis on restoration and maintenance of the fertility of their traditional rangelands, which have become degraded and unable to sustain their animals. The IPAL management plan should provide the basic guidelines.

It is understood that a consortium of counties namely, Baringo, Isiolo, Marsabit and Samburu have put together a proposal for the Government's assistance for drought amelioration in the present budget, but this has not been widely publicized. I welcome collaboration in this important matter.

From my experience I wish to recommend the following steps to be integrated with their proposed program:

- a. Establishing an ongoing dialogue with community leaders to identify the key problems, their root causes and possible solutions. I and my team have many years of experience using successfully the "psycho- social method of problem posing and solving" with Samburu, Rendille and Gabbra pastoralists. I have lived with them, witnessed their problems and, using this method, we have jointly helped to solve them. (Field, 2005).
- b. Some of the problems may only be discussed once the pastoralists have confidence that we are there to help them. For instance, population management of both the people and their livestock will involve planned parent hood, employing women and experienced teachers with successful track records. For example, a lady who volunteered her time and travelled on foot with camels, won considerable support from the Samburu women with whom she interacted.
- c. New boreholes should never be developed within watering distance (16 km.) of their nearest neighbors. Should this happen the whole area which can be reached by livestock may become degraded and a desert. The solution is to have only one Gen-set and pump to service neighboring boreholes. The equipment should be easy to move when the grazing is nearly finished, so that the heavily grazed pasture is rested and restored. Pastoralist communities should be represented on committees of elders, including Government water and range officials, to decide when to move equipment to the next bore hole.
- d. Financial assistance for those who wish to commit to a greater proportion of camels in their family herds. Camels may be purchased from Somalis as they have a tradition of bringing them to the area for sale during and after drought. Meanwhile cattle should be discouraged. Apart from their unsustainable dependence on water and destruction of the nearby rangelands, they suffer from five diseases which do not affect camels: namely FMD, ECF, pleuro- pneumonia, rinderpest and lumpy skin disease.

Camels have already been cited as the best domestic animal for arid rangelands and through the Kenya Camel Association (KCA) have been on the increase in the driest counties. The KCA has been an effective organization in promoting the camel, but now needs funding to support its good work. Furthermore, during drought camels showed a high preference for prickly pear pads (*Opuntia* spp., see slide)(Field, 2009) This cactus was

introduced to East Africa from Mexico and the southern United States as a hedge plant, but has proliferated on ranches, especially where there is heavy grazing and no burning, such as around wells, dams and boreholes.

- e. The possibility of domesticating certain desert adapted wildlife should be encouraged on Conservancies with the support of KWS. My research on the domestication of three species of wildlife on Galana ranch, which is largely arid, emphasized the Oryx (*Oryx gazella callotis*) as the best candidate (Field, 1976) (See slide of oryx).

Grevy's zebra (*Equus grevyi*) were common in semi-arid parts of our UNESCO study area, being drought resistant. They have been hybridized with the horse and used for work by Raymond Hook, here on Mount Kenya (Pollard, 1963). Zebroids (Grevy's zebra X horse hybrids) have been kept for some time at the Mount Kenya Safari Club, quite near this meeting. (During Christmas 2016 the author also witnessed a donkey running with a herd of Grevy's zebra at Shaba Reserve near Archer's Post. Since Grevy's can hybridize with horses and mules are the progeny of horses and donkeys, the possibility also exists of Grevy's zebra hybridizing with donkeys!) (See slide from Shaba)

Oryx and zebra do not compete with camels as they are both grazers, concentrating mostly on annual grasses such as *Aristida* and *Eragrostis* species.

- f. Analyses of over ten aerial surveys of the UNESCO study area (see slide) showed a consistent seasonal transhumance of pastoralists and their livestock up the mountains during drought while wildlife concentrated on the three major sand rivers, the Balesa Kulal, Milgis and Merille, below. This led me to recommend a new class of seasonal reserve where wildlife would be protected along dry rivers during drought and tourists encouraged to view them, which today would be classified as a Conservancy (Field, 1991). Oryx and Grevy's zebra would be key attractions, alongside the browsing Reticulated giraffe and Gerenuk, all of which were once common along the Balesa Kulal and now need conservation.

g. Destruction of woodlands in ASALs has been shown to be primarily for *boma* construction and firewood, the former being more damaging as live *Acacias* were selected. Trials at the IPAL Project showed that bamboo *bomas* are effective in controlling predators (See slide of bamboo *boma*). The main constraint was transport costs from Mount Kenya and the Aberdares to the ASALs (Now that a super highway connects the two, costs may be reduced (UNESCO/IPAL, 1983). Failing this, trials should be run to establish bamboo (*Arundinaria alpina*) on Mount Nyiru, the Ndotos or Mount Kulal. Marsabit would be below the lower altitude limit of bamboo (Lind and Morrison, 1974). Notably, bamboo has been cultivated on plots, including my own in the Shimba Hills, Kwale at the Kenya Coast, where there is heavy seasonal rainfall. It has been suggested that it could even be grown at Kalacha using the copious water from Kalacha goda springs, but crop irrigation might have priority.

- h. Resting of degraded land alone may not lead to its full restoration. When the land around boreholes is rested it should be mechanically pitted to enhance penetration of rainfall and minimize runoff. Research has shown that a key plant to be re-established is the legume *Indigofera spinosa*, which is desert adapted and palatable to all livestock,

especially camels (Field, 1978, Schwartz and Schultka, 1995) More research is necessary to determine the optimum conditions for the propagation of this species.

- i. The key tree species in ASALs is *Acacia tortilis*, which is a pioneer in desert rehabilitation from the Sahel to Israel (Lamprey, Halevy and Makacha, 1974). It produces highly palatable indehiscent pods sought after by most livestock and many wildlife (Lamprey, Herlocker and Field, 1980) and even man (Nation, 24.2.18)! Their palatability appears to be an evolutionary strategy for their dissemination. Scarification of the testa, or seed coat, during rumination may be necessary for the successful germination of this tree.
- j. The newly initiated livestock insurance scheme should be evaluated in the light of the latest drought, not only by its promoters, but also by the stakeholders. How has it affected the rangelands, which are the primary resource? Who has it benefitted most? Should branding of participants livestock be a prerequisite?
- k. Use of the media with radio programs for the Rendille in their vernacular were found to be a highly successful tool for reaching pastoralists with development news in remote areas (Allen, 1981). This should be expanded to beam appropriate information and messages to all the ethnic pastoralist groups.

Conclusion

It is time that the relevant UN agencies, Government and NGO's move beyond their traditional damage control approach to pastoralist livelihoods, and seriously invest in their future. My suggestions, selected from a wealth of ideas collected during 40 years of experience, are not exhaustive and others will arise once a friendly dialogue, involving the joint problem posing and solving approach, is initiated with the pastoralists.

Despite our detailed management plan, little action has been taken and the problem has been allowed to grow to alarming and almost irreversible proportions. Action is necessary NOW else the 75% of Kenya which is mostly north of the equator will be abandoned to the Sahara and the prediction of Le Houerou (1991) verified.

References:

1. **Allen, Irma A. (1981)** Report of a consultancy in Education and Training. IPAL Technical Report F1, 194 pp. UNESCO MAB, Nairobi.
2. **Field, C.R. (1975).** Climate and the food habits of ungulates on Galana ranch. E. Afr. Wildl. J. 13:203-220.

3. **Field, C. R. (1978).** The food habits of camels in Northern Kenya. UNEP/MAB TECH. Rep. E1b pp.22, UNESCO, Nairobi.
4. **Field, C. R. (1986).** Management for the conservation and sustained productivity of rangeland in the Marsabit District of Kenya. pp. 489-491 in Proc. 2nd Int. Rangeland Congress, Adelaide, Australia
5. **Field, C. R. (1991).** Conservation of rare and endangered mammals in the Mount Kulal Biosphere Reserve with recommendations for special reserve status 13 pp. Int. Symp. on Human influences on rare and endangered wildlife species in Africa. Kampala, Uganda.
6. **Field, C. R. (2005).** Where there is no Development Agency: a manual for pastoralists and their promoters. 260 pp. NR International, Aylesford, Kent, UK.
7. **Field, C. R. (2009).** The effect of drought on the food habits and survival of cattle and camels on a ranch in Kenya. Report to the Agricultural Development Corporation. 15 pp mimeo, Nairobi.
8. **Kaplan, R. D. (2003).** Surrender or Starve. Travels in Ethiopia, Sudan, Somalia and Eritrea. Vintage Books, pp. 222, New York.
9. **Lamprey, H. F., Halevy, G. and Makacha, S. (1974).** Interactions between *Acacia*, bruchid seed beetles and large herbivores. E. Afr. Wildl. J. 12, 81-85
10. **Lamprey, H.F., Herlocker, D.J. and Field, C.R. (1980)** Report on the state of knowledge on browse in East Africa in 1980. pp.33-54 in "Browse in Africa" Ed. H.N.Le Houerou, ILCA, Addis Ababa.
11. **Le Houerou, H. N. (1991).** Outline of the biological history of the Sahara. Pp. 147-174 in Mammals in the palaeartic desert. UNESCO-MAB, Russian Academy of Sciences, Moscow.
12. **Lind, E.M. and Morrison, M. E. S. (1974)** East African Vegetation. 257 pp. Longmans, London.
13. **Pollard, J . (1963).** African Zoo Man. 176 pp. Robert Hale Ltd, London.
14. **Schwartz, H. J. and Schultka, W. (1995).** A compendium of important forage plants in the semi-arid and arid rangelands of Kenya. Range Management Handbook of Kenya. Vol. III, 9 pp. 251 MALDM/GTZ. English Press, Nairobi.

15. **Spencer, P. (1973).** Nomads in Alliance. 230 pp. Oxford, University Press, London.
16. **UNESCO/IPAL (1983).** Integrated Resource Assessment and Management Plan for Western Marsabit District, Northern Kenya. PART II Management Plan pp. 484-637, UNESCO, Nairobi.