



Pastoralism as Conservation in the Horn of Africa

Pastoralists have often been described as sophisticated and dynamic managers of their natural resource base, and they employ elaborate land use strategies for conserving species and important habitats. It is increasingly recognised that pastoralism is essential for the sustainable management and ecosystem health of dryland environments, yet pastoralist natural resource management strategies are increasingly threatened by many different factors. The key to the successful conservation of dryland environments in the Horn of Africa (Box 1) lies in the ability of pastoralists to observe and manage variations in vegetation and precipitation, temporally and spatially, in order to maintain sustainable livelihoods and economic growth.

Pastoralists have a vital role to play in the future sustainability of dryland ecosystems and future policies should aim to enhance the dual roles of pastoralism as a conservation and sustainable dryland livelihood strategy by:

- 1. Building on, and working with, pastoral customary institutions**, for example with respect to seasonal grazing areas, herd diversity and mobility;
- 2. Respecting and use pastoralist knowledge systems** about the diverse flora of drylands ecosystems and enhancing their diverse uses, for example as fodder, food or fuel, or as marketable commodities;
- 3. Assisting both the market integration and the subsistence economy** of pastoralism, through incentives and regulations that encourage the sustainable use of natural resources;
- 4. Developing incentives** to promote the social and economic security of dryland pastoralists by ensuring greater benefit flows from wildlife conservation and supporting community wildlife management and diversification beyond livestock production; and
- 5. Improve land rights and tenure security** in the drylands, based on existing customary arrangements to support opportunism and flexibility as the key tools for sustainable pastoralism and dryland conservation.

Box 1: Pastoralism in the Horn of Africa

The countries of Sudan, Eritrea, Djibouti, Somalia, Ethiopia, Uganda, Kenya and Tanzania, display a very rich diversity of cultures and peoples, geographical features and biodiversity. The dry and pastoralist lands of eastern Africa occupy over 70% of the region, ranging from about 95% (Somalia and Djibouti) to about 60% (Uganda). In Sudan pastoralism involves about 20% of the population and accounts for almost 40% of livestock wealth. Pastoral communities are concentrated in ecologically marginal, semi-arid and arid areas under some form of common property regime. There are also areas converted to large-scale irrigated and rain fed agriculture, small-scale farming, protected wildlife areas and forest reserves, as well as urban areas.

Pastoralists have a wealth of environmental knowledge, but this does not guarantee that they avoid resource depletion. Pastoralism has, however, contributed substantially to the diversity of species and habitats, and is inextricably linked to the conservation of biodiversity. Respecting pastoralist environmental knowledge and encouraging pastoral mobility is essential for biodiversity conservation: to conserve particular biological communities (e.g. vulnerable wetlands or forested hill areas); to conserve certain species (e.g. particular fodder tree species or medicinal plants); and for sustainable natural resource use (e.g. production and marketing of gums and resins).



Pastoralism in Eastern Africa

Although globally 'Pastoralism' is difficult to define, the term refers to livestock-based production systems that are based on extensive in land use and often employ some form of mobility. There are many types and degrees of pastoral mobility, which may vary according to environmental conditions, or the given stage of a household's life cycle. Pastoralism is dynamic, flexible and opportunistic such that it is difficult to categorize into mutually exclusive groups. Mobility in eastern Africa can be seasonal or regular between well defined pastures (e.g. between the highlands and the plateau, or lowlands and floodplains). It may follow fixed transhumant routes, or be rarely the same from year to year. Mobility of livestock may not necessary be related to the mobility of households, and movement is not always undertaken for ecological reasons (it may be for trade, as a result of conflict or to seal new political alliances).



Pastoralism is seen as a livelihood and livestock strategy for the drylands. Yet the underlying (and usually under recognized) reality is that pastoralism is a conservation strategy to make best use of drylands both in space and time to help pastoralists secure their livelihoods in harsh and risk prone environments. Wildlife authorities tend to underestimate the importance of pastoralism, despite the fact that pastoralism is one of the few land use strategies that is compatible with wildlife conservation. If pastoralists livelihoods are to be improved and the degradation of drylands reduced, then it is critical that pastoralism is respected and developed as a sustainable land use system that respects the climatic limitations of the drylands, the necessity for mobility, and which integrates sophisticated local knowledge and institutional systems.

How Does Pastoralism Conserve?

Pastoral production systems demand a detailed knowledge of the environment for efficient resource utilization. Awareness of the climate and its spatial and temporal variability is indispensable for survival in harsh environments. This awareness is based on generations of observation and adaptive management. Pastoralism is an effective conservation and livelihood strategy that supports the peaceful coexistence between pastoralism and wildlife conservation (Box 2). Pastoralists' lands continue to be among the last holding grounds for many of the remaining fauna and flora.

Box 2: Conservation

Conservation refers to the maintenance of species, and ecosystem diversity for present and future generations. Actions which prevent or mitigate resource depletion, species extinction, or habitat degradation, all contribute to conservation. Conservationists evaluate success in ecological and environmental terms, while rural development specialists tend to use socio-economic criteria. The proper management of natural resources is often seen as an uneasy tension between "conservation" and "production". The test of sustainability lies in the proper mix of protection and production.

The use of pastoral resources is based on a complex set of temporary or more permanent claims on pastures, wells and other resources (salt licks, for example), and on underlying principles of flexibility and reciprocity. Considerable ecological knowledge and wisdom is held by pastoralists emphasizing food self-sufficiency and local resource conservation. Conservation outcomes in pastoral rangelands are largely a "by-product" of high mobility, low population densities, dispersed water sources, disease avoidance, and making best use of available resources over space and time.

There are a number of attributes of pastoralism which enable it to be a livelihood strategy in risk prone environments, and which contributes to conservation:

Livestock strategies

The main production objectives of pastoralists are not just to increase herd size. Pastoralists aim to increase milk yield, maintain an appropriate herd structure for short and long term reproductive success, and ensure disease resistance by selective breeding. Such herd heterogeneity reflects and enhances a diverse production base, and the flexibility of the system is an insurance policy that sustains livelihoods and promotes conservation. Pastoralists livestock management attributes include:

- **Livestock adaptation:** pastoralists own a diverse array of indigenous livestock, selected largely on the basis of survival and productivity traits, and well adapted to the climatic conditions in which they live;

- **Livestock mobility:** mobility enhances the efficiency of forage conversion into livestock products, and is a risk management strategy that requires movement on different scales depending on the variable timing and location of rangeland resources;
- **Species diversity:** rangelands are characterized by diverse mosaics of species and ecosystems and pastoralists manage both grazing and browsing livestock species to optimize different range resources and conserve these ecosystems; and
- **Herd splitting:** is a risk reducing strategy used by pastoralists to maintain the long term productivity of the range, ensure sustainable production, and is an integral component of customary institutions and social organisation.

Land management strategies

Pastoralists do not passively accept whatever their rangelands offer them. They actively manage the range using strategies such as: water development, bush clearing, tree regeneration, protection, and use fire. The rangelands are a core pastoral asset that is usually held in common, as all pastoralists have a strong cultural attachment to land. Most communities believe that the ecosystem can only be destroyed when deeply rooted traditional views about land are violated or ignored, since the ecosystem is like a spider's web held together by different but complementary threads emanating from the land. Such threads include:

- **Reserved grazing areas:** also known as "rich-patch vegetation areas", pastoralists set aside such land for use during the dry season and drought times. Fodder banks are reserved to support household milking herds or young-stock, and enclosures are set aside to allow regeneration;
- **Controlled burning:** many pastoralists use carefully controlled fires to manage the rangelands, control disease, destroy unpalatable grass species and to encourage the growth of palatable species;
- **Water management:** water sources for pastoralists are tightly controlled and access rights are negotiated such that range and water management go hand in hand, and it is often the availability of water in the driest areas that gives livestock access to some of the highest value pastures;
- **Cultivation:** many pastoralists cultivate and there is a growing tendency for pastoralists to practice opportunistic arable farming, which blurs the distinction between pastoralists and agro-pastoralists;
- **Resource rotation management:** pastoralists depend on a variety of resources from crop residues to distant grasslands, and there are "push and pull" factors that influence resource use from the occurrence of pests and diseases to the timing of cultural gatherings, growing seasons and market access.

Multiple resource dependency

In the rangelands, plants are managed for a variety of purposes including for building materials and utensils, fodder, weapons and medicines. Many pastoralists can recognize almost every plant in their rangelands, and are aware of important information such as seasonality, toxicity and pharmacological benefits, and their nutritive values. Specific species of plants and trees are conserved and managed through traditional forms of resource management, for example:

- **Tree conservation:** conserving trees is vital to pastoral livelihoods, for preserving fodder resources, providing shade, and protecting a stream of other benefits that a wide variety of trees provide;
- **Gums, resins and medicinal plants:** in pastoralists' landscapes gums and resins such as Gum Arabic (a food supplement), myrrh (essential oil and medicine) are used locally and exported, along with many other natural products; and

- **Wildlife conservation:** a growing number of pastoralists are benefiting from wildlife conservation and wildlife populations are often higher in pastoral areas than in adjacent national parks, illustrating the importance of livestock-wildlife integration.

Institutional arrangements

Livestock mobility depends on the presence of large, usually commonly owned landscapes, on knowledge of ecosystem productivity, and on pastoralists ability to negotiate or enforce access to resources. Traditional institutions and social cohesiveness, which once helped pastoralists regulate natural resource use and survive periods of stress, are being eroded, but continue to play a significant role in the use of natural resources and their conservation, for example:

- **Resource protection:** throughout eastern Africa, pastoral communities designate roles of resource protection to different institutions or individuals, such as the *Laibons* (traditional seers and medicine men) among the Loita Maasai who control the use of certain sacred resources such as the *Oltukai* (*Phoenix reclinata*) that are used for cultural ceremonies;
- **Risk management:** traditional institutions for rangeland management such as "Qaaran" in Somali, "Iribu" in Afar, and "Bussa Gonefa" in Borana are diverse, and include ways of supporting pastoralists who have lost their livestock due to drought, raids, and diseases; and
- **Reciprocity and Negotiation:** collective action acts as a system of social safety nets enhancing labour sharing and security during periods of stress, which makes it vital for effective rangelands management.

Pastoralism and resource degradation

Pastoralism is one of the few forms of land use that is compatible with wildlife-based conservation tourism, but wildlife conservation has expropriated large areas of, often, the most important pastoralist rangelands. For example, approximately 75% of Kenya's wildlife reserved estate was originally owned and managed by pastoralists. This combined with increasing pressures from other forms of land use mean that pastoralists and wildlife managers in East Africa are finding themselves forced into uneasy alliances. Pastoralism and wildlife both have first-order conflicts (fundamental incompatibility) with intensive agriculture, whereas they only have second-order conflicts (some constraints to compatibility) with each other¹.

There is often short term land degradation in pastoralists' areas, which does not necessarily compromise the long term resilience of the landscape. Pastoral communities build up herd size in good years as a buffer against uncertain environmental catastrophes, and this does not necessarily cause long term degradation due to natural checks and balances. However, pastoralism faces many constraints that lead to rangeland degradation and that have reduced the productivity of their natural resource base.

Unsustainable development and coping strategies include:

- **Sedenterisation:** many pastoralists have become increasingly sedentary, either as a result of explicit settlement programmes, or to take advantage of new resources such as water points or social services;
- **Labour competition:** where pastoralists are forced into farming, it competes directly for key labour resources and undermines the pastoral system and pastoral mobility;
- **Charcoal production:** with the tremendous demand for fuel in urban centres, manufacture of charcoal has become a key measure through which pastoralists cope with poverty, but it is seldom regulated and can have a devastating effect on the environment, although in some areas it may actually reduce the encroachment of invading species. For example over half the charcoal in Kenya comes from trees and woodlands in the drylands;

¹ Aveling, R., Barrow E., Bergin P. and Infield, M (1996.) Livestock and wildlife in the environment: diversity in pastoral ecosystems of east Africa. African Wildlife Foundation, Nairobi, Kenya.



- **Intensive agriculture:** the clearance of vast tracts of forest- and dry-lands for mechanized farming is taken for granted as such agriculture is generally considered “modern” and non-environmentally damaging, whilst localized overgrazing around watering points is grossly over-emphasized;
- **Wildlife parks and sanctuaries:** pastoralism is one of the few land-use systems which is compatible with wildlife conservation. Yet it is ironic that pastoralism is increasingly undermined through exclusion from wildlife parks and sanctuaries;
- **Invasive species:** the encroachment of unwanted plant species such as *Prosopis juliflora*, *Euphorbia tirucalli* and *Amaranthus spinosus* is a serious problem leading to significant deterioration and loss of rangelands, a problem exacerbated by restrictions on traditional burning;
- **Grazing competition:** conflicts for resources between pastoralists and other land users, and pastoralists themselves can constrain mobility. This can result in increasing grazing pressures in one place, leading to undergrazing in another. It can also cost human and livestock lives, and the destruction of property; and
- **Commercialization of natural products:** As a result of the global interest in indigenous knowledge and traditional remedies presents a further potential competition over resources that increase pressure on the respective plants, unless there is sustainable management and fair trade.

- **Infrastructure development:** the construction of permanent infrastructure such as schools and dispensaries often curtails mobility in drylands and although they can create new markets for pastoral products they often attract non-pastoral populations and thus increase resource competition.
- **Water development:** the proliferation of water points, which do not take into account environmental considerations, has disrupted traditional migration routes for livestock and in some cases leads to the permanent grazing of pastures which reduces plant vigour and encourages a shift from palatable to unpalatable species and leads to loss in biodiversity.

Land use change and resource competition issues include:

- **Cultivation:** encroachment of sedentary crop cultivators into the rangelands has restricted mobility and contributed to fodder shortages, particularly during stress periods when pastoralists traditionally retreat to rich resource patches that are also cultivable;
- **Range enclosures:** development projects tend to favour the intensive western ranching models involving fenced parcels of land which results in reduced mobility and degradation of the environment. For example, the trend by pastoral communities in many parts of Somalia to enclose land, conflicts with mobility and therefore undermines the key strategy protecting dryland ecosystems. In some areas of Somalia (Mudug region in Jariban District) there is a clan agreement to forbid such enclosures;



Conclusions

Pastoralists have extensive knowledge about their rangelands and environments, and they have sophisticated institutions that enable them to exercise that knowledge. But these institutions are under threat from a wide range of changes and pressures that impinge on the rangelands. Overcoming rangeland degradation requires a process of enabling customary and local institutions to best use traditional and other knowledge in order to ensure that pastoralism continues to be practiced effectively.

Fortuitously, the same institutions that are required for protecting the rangelands are also central to pastoral economies and welfare. Policy options that will improve conservation of the drylands are those policies, and policy processes, which work with customary institutions and which respect traditional knowledge. Conservation and sustainable management of rangelands requires security of rights and land, an understanding of local livestock production and risk management strategies, and collective action. This can be integrated into national policy formulation strategies and project designs. Pastoralism represents one of the few ways to improve livelihoods and create wealth (trade, marketing, value adding of livestock and other natural resource products) in the drylands. This is key to improving livelihoods and the attainment of the Millennium Development Goals, and as a sound conservation strategy for such lands.

These policy briefs are prepared based on eight national studies from the Horn of Africa. The policy briefs are not referenced, and readers are referred to the detailed national studies found at www.iucn.org/wisp/publications. The full reference for the policy brief is:

Barrow, E., Davies, J., Berhe, S., Matiru, V., Mohamed, N., Olenasha, W., Rugadya, M. [Su, Eth, Som] (2007): Pastoralism as Conservation in the Horn of Africa. IUCN Eastern Africa Regional Office. Policy Brief No. 1 (of 5). Nairobi, 4 p.

For further information, including details of how to join the World Initiative for Sustainable Pastoralism, please visit the website at: www.iucn.org/wisp